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# Economic Bulletin for Latin America





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*The Economic Bulletin for Latin America* has been published by the secretariat of the Economic Commission for Latin America twice yearly since 1956. The essential purpose of this periodical is to provide a résumé of the economic situation of the region designed to supplement and bring up to date the information published in the Commission's annual economic surveys. Apart from this summary, which is to appear in every issue, special articles on different subjects related to the economy of Latin America are included, as well as informative and methodological notes.

The ECLA secretariat assumes entire responsibility for the *Bulletin*. Its content—intended for the information both of public officials and of the general reader—was not submitted to the Commission's member Governments before publication.

Since October 1958 the *Bulletin* has regularly included a Statistical Supplement. This subsequently became large enough to warrant separate publication, one issue being published in 1960, another in 1961 and two in 1962, each being bilingual with the corresponding table of contents. Since 1964, a new publication, the *Statistical Bulletin for Latin America*, has been issued twice a year, to provide the public with a regular flow of statistical data on economic matters.

#### EXPLANATION OF SYMBOLS

Three dots (...) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A minus sign (—300) indicates a deficit or a decrease.

A stroke (/) indicates a crop year or a fiscal year, e.g., 1954/55.

An asterisk (\*) is used to indicate partially or totally estimated figures.

"Tons" and "dollars" are metric tons and United States dollars, respectively, unless otherwise stated.

Minor discrepancies in totals and percentages are due to rounding.

# PUBLIC ENTERPRISES: THEIR PRESENT SIGNIFICANCE AND THEIR POTENTIAL IN DEVELOPMENT\*

## I. MAIN ASPECTS

### 1. Outline

Besides discussing the role of the private sector and its repercussions on the public sector, most studies on the mobilization of domestic resources examine the more traditional functions of the public sector, namely, those that have to do with revenue and expenditure. Consequently, any discussion of the subject tends to centre on the classic questions of fiscal policy (the nature of public income, the composition of expenditure, etc.) while generally relegating the part played by public enterprises to the background, or omitting it altogether. This may well be because, as a rule, they are seen as the backbone of the infrastructure or as suppliers, as aids to the production of other enterprises; instances where they actually generate profits tend to be looked upon as exceptions or anomalies. Even in the over-all planning process it is quite common for the public enterprise sector not to be taken explicitly into account: most medium-term plans prepared in Latin American countries, for instance, refer only to investment by the central government and fail to give a sufficiently detailed breakdown of investment by public enterprises. Considering the size of these enterprises, in terms of capital, sales volume and staff, and their effect on the accumulation of resources, which is partly reflected in their fixed investment, and especially considering, in addition to such quantitative data, their influence in decisive sectors of the economy, this approach is quite unjustified. The importance of public enterprises is increased further by their ability to serve as agents of a development policy, i.e., their role in capital formation, their links with the world of technology and with the capital goods

\* This paper is the second in a series of studies on the mobilization of domestic resources being prepared by the Commission. The first, entitled "Mobilization of domestic resources", was published in the last number of the *Bulletin* (vol. XV, No. 2).

industries, and their potential co-ordination and action as instruments of an over-all economic policy.

These are some of the outstanding features of public enterprises which this rough preliminary study will attempt to explore. It is a new addition to the series of studies on the public sector and on the mobilization of domestic resources that was started some years ago.<sup>1</sup> This somewhat ambitious project comes up against the hitherto unsolved problem of the scarcity of data and the fact that many of those that do exist are not comparable; for this reason and because it is a practical impossibility to include all public enterprises, only the largest firms in selected countries will be dealt with here. The study, however, is still valid despite the shortage of information since it does not attempt to give a comprehensive and detailed picture of public enterprises but only to provide a few pointers to their significance and functions and to pose a certain number of problems and questions. Furthermore, there is no attempt to establish positions of principle or make practical recommendations, but only to help towards a better understanding of this sector of the economy. It is, moreover, the first study on this subject and it is hoped that it will serve as a basis for a more extensive and detailed future analysis.

### 2. Origin of public enterprises

If events followed a logical course, government enterprises would be selected in accordance with the basic criteria of economic policy

<sup>1</sup> See ECLA, *Economic Survey of Latin America, 1955*, pp. 111-176, on government income and expenditure during the period 1947-1954; *Economic Survey for Latin America, 1967*, pp. 100-118, on tax financing; and *Economic Survey for Latin America, 1968*, pp. 101-109, on the public sector. In addition, a document on the mobilization of domestic resources (E/CN.12/827) was presented at the thirteenth session of the Commission (Lima, Peru, April 1969).

and would operate in a coherent manner. In theory, the State would take over and administer certain carefully chosen activities on the principle that private enterprise does not guarantee—and, in extreme cases, actually goes against—the common good or the execution of specific policies, thereby ensuring compatibility of aims and a co-ordinated plan for activities in which the public interest was directly involved. Thus, the setting up of a public enterprise or the taking over of a private enterprise by the State would be orderly and systematic and would imply the fulfilment of certain fundamental conditions. But this has not been so in practice. As a rule, it has not been the government that has decided beforehand, in the light of the needs of the economy, just what existing or future enterprises should be State-owned; on the contrary, there is great diversity among public enterprises as regards articles and services produced, quality, size, age and origin. As this diversity is largely responsible for their lack of co-ordination, it is worth considering how these have been brought under State control, examining first the procedure adopted and then the function they have fulfilled at the various stages of Latin America's economic development.

(a) The first category comprises public utility enterprises that have traditionally operated under State supervision or direct State control, especially those connected with transport and energy. In some cases, the State has been responsible for these activities from the start; in others, it took over from private concerns after a certain period. In the case of the Argentine railways, for instance, the first railway company, Ferrocarril del Oeste, which started operating in 1857, was originally privately owned; it was turned over to the Province of Buenos Aires in 1862, bought in 1890 with British capital, and was finally nationalized in 1948, along with all the other railway companies. Another example is Chile's electricity supply, which used to be in the hands of a private company, Chilctra—nationalized in 1970—and a public enterprise, ENDESA, which generated 41 and 58 per cent of the national total respectively in 1968. The Brazilian telecommunications system is a third case in point; finding that the company's equipment was out of date and that at least a million more telephones were needed, the State took over the Brazilian Traction Company in 1966, which became the Brazilian Telephone Company, and set up EMBRATEL, a public

enterprise responsible for the inter-state long-distance communications system.<sup>2</sup>

As will be seen below, virtually all railway services and most power companies are currently under State control.

(b) The government has taken over other activities or established new enterprises to assist in the execution of economic policies or plans necessitating government management in certain strategic areas.

This has been done in two different ways. One involves carrying out a specific activity along different lines from those that would be followed by a private enterprise, or tapping the resources generated by such an enterprise for public investment projects. This is what happened when the Bolivian tin mines were nationalized, partly out of a desire for greater independence and partly because of the need to use the resources they generated. A recent document published by the Bolivian Government recalls how, during the Second World War, Bolivia was forced by its economic dependence to agree to the freezing of the price of tin at a level which was unilaterally fixed by foreign interests. The document goes on to say that naturally the mining enterprises themselves did not suffer from this arrangement, as they possessed enough political power to be able to use their profits to finance projects abroad and were powerful enough in Bolivia to evade any taxes designed to keep a share of their profits in the country.<sup>3</sup> It is interesting to note how these resources were channelled and used after nationalization. The Bolivian mining corporation (Corporación Minera de Bolivia—COMIBOL) was forced to sell the foreign exchange earned from its tin exports to the Central Bank at a low exchange rate, and the resources were used to keep down the prices of essential imports and for investment in other sectors of the economy, both public and private.

The second way is to create new enterprises. Once the enterprise is established, the State continues to control it, sets up a mixed company or sells it to private investors. The decisions that have been adopted have depended on the aim the State had in view when it established the enterprise and the prevailing

<sup>2</sup> See Ministerio de Planejamento e Coordenação, *Programa estratégico de desenvolvimento, Área estratégica III: Infraestrutura, III Comunicações*, draft version, 1968, pp. 4 *et seq.*

<sup>3</sup> See Ministerio de Planificación y Coordinación, *Estrategia socio-económica del desarrollo nacional, 1971-1991*, vol. I, p. 38.

trends in Government economic policy at the time.

A typical example of this approach is provided by the Chilean production development corporation (Corporación de Fomento de la Producción—CORFO), which is a government agency set up in 1939 for the purpose of formulating an over-all development plan for the Chilean economy. In the initial stage it was decided to formulate sectoral plans since there were certain obvious priorities, and studies were carried out to determine the potentialities and deficiencies of each sector; and not only that—machinery was set up for practical action to promote sectoral development. CORFO organized enterprises in which it had a majority or minority interest, such as the electricity company (ENDESA 1944-1945), the steel company (CAP, 1946), the petroleum company (ENAP, 1950), the beet sugar company (IANSA, 1952), the hotel consortium and HONSA (1944 and 1945), the network of refrigerating plants (from 1948 onwards), the telecommunications company (ENTEL, 1964), and the fishing industry. In the case of manufacturing, it bought shares and provided technical assistance to enterprises producing iron and steel, fisheries products, pulp and paper, electronic equipment, chemicals petrochemicals and metal products. It also set up support organizations such as the natural resources research institute (Instituto de Investigaciones de Recursos Naturales—IREN), the Chilean technological institute, the national vocational training institute (Instituto Nacional de Capacitación Profesional—INACAP), the computer services enterprise, the costs institute and the technical co-operation service. Lastly, CORFO drew up the national programme of economic development, 1961-1970, the basic purpose for which is was created. Previously, it had formulated development policies for industry, agriculture and commerce. Thus, in industry, from 1944 onwards, CORFO supplied financing and guaranteed the operations of private enterprises, besides being a share-holder in some enterprises, as mentioned above; in agriculture, it provided capital for irrigation and drainage, improved livestock breeding, etc.; in commerce, it took action to keep the market steady at crucial moments, and as part of its normal activities supplied some dairy and fish products. In short, CORFO currently owns shares in more than eighty enterprises and institutes of widely differing kinds (see table 9 below).

(c) A third method is for the State to take over activities as a result of confiscation. This has been the case for the property of enterprises or citizens of countries at war, which were nationalized temporarily or permanently (e.g., German property during the Second World War), and for the property of persons or enterprises expropriated by the Government for various reasons.

An example is the setting up of the corporation of State enterprises (Corporación Dominicana de Empresas Estatales—CORDE) in the Dominican Republic; in 1961 these enterprises passed under the control of the industrial development corporation, which in July 1966 became CORDE. In addition, the hotel corporation and the Dominican sugar company were created; the sugar company took over all the nationalized mills and later became the State sugar council (Consejo Estatal del Azúcar). By 1962, the Dominican electricity corporation, which was purchased in 1955, had been nationalized. CORDE is the owner of or a share-holder in forty-eight enterprises; in the manufacturing sector it is the owner of eight enterprises, has a majority interest in thirteen others and a minority interest in nine; it owns one agricultural enterprise; it owns one mining enterprise and is a minority share-holder in another; lastly, it has a controlling interest in nine commercial enterprises and a minority share in six others. Of these enterprises, nine are monopolies, two have a joint monopoly, and the rest compete with the private sector (see annex, table F).

CORDE is not in the same position as CORFO, since it is basically responsible for managing a group of enterprises that were confiscated and whose nature had not previously been determined.

(d) Lastly, there are cases of emergency nationalization, where the State buys enterprises that cannot be kept going by private enterprise. In some such cases, the State has acted to ensure the continued supply of certain services or inputs that are essential to the community, and in others it has supported the enterprises, taken over responsibility for their losses and acquired a share in their capital. An example that immediately springs to mind is the nationalization of railways in countries where they were running at a loss.

### 3. *The stages of development and the State enterprises*

These were the main ways in which various types of enterprises were nationalized. To com-

plete the picture, it is of interest to show how they were transferred to the public sector at each stage of industrialization in Latin America. It should be noted that, in each successive stage outlined below, the emergence of a new phase does not imply the disappearance of the previous phase, but a shift in the main emphasis.

At the initial stage, when the essential motive force for economic growth was exports, the State enterprises generally had little part to play. At that time, the operation of public utilities was bound up with international trade and produced high profits, both from the running of the utilities and in terms of incentives provided by Governments (particularly guaranteed profits and loans). Thus, the main infrastructural items needed to extract and transport the chief export products were generally in the hands of foreign firms, as was normally the case with railways, ports and electricity. Government action usually took the form of control of these and other public services, promotion of industries and regions where private enterprise was not yielding good enough results and provision of certain less important public services not connected with exports (water supply, urban transport, etc.). An exception to this rule was the petroleum industry, which was State controlled in some countries.

The situation changed radically in the next stage of industrial growth. In particular, industrialization itself would not have been practicable without State protection (in the form both of tariffs and of loans), with the result that the operation of public services, which had been designed for a specific situation, area and activity, ceased to attract private capital. In addition, there was a movement, more pronounced in the post-war period, which made nationalization of public services and basic resources a political platform. Thus, several countries nationalized transport (particularly railways), electricity and communications services. In many cases this process was accepted by the former owners, for a variety of reasons, such as unprofitability of the enterprises, difficulties in remitting profits, the running out of concessions or of tax exemptions, etc., which coincided with the advent of nationalistic political aspirations. In the cases of nationalization of enterprises producing goods for export—of which Mexican petroleum and Bolivian tin are outstanding examples—the causes were mainly political, since the nationalization of these enterprises had been

one of the demands of revolutionary movements.

Only at a more advanced stage of industrialization did the State participate fully in the economy as *entrepreneur* and producer of goods of all kinds. This phase has several typical features. In the first place, it coincides with the acceptance of the view that the control and nationalization of enterprises and the creation of new enterprises are a means to an end. Moreover, in countries at a more advanced stage of industrialization big firms predominate—so big that they are usually beyond the reach of national *entrepreneurs* and therefore largely dependent on foreign or State financing. During the first stage of development, food, textile production and simple engineering were within the reach of local capital and technology; on the other hand, the production of capital goods, automotive products, heavy chemicals, electronic equipment and even household consumer durables, which are the backbone of the new stage of industrialization, could, with a few exceptions, be financed in Latin America only with foreign capital or public funds because of their costs, size and technology. This fact is illustrated by the list of the thirty largest non-financial institutions in Argentina and Brazil in tables 2 and 3. In this case, the nature and magnitude of State participation is bound up with the basic orientation of the industrialization process, since investment, production and price criteria may be introduced that conflict with the aim of obtaining maximum profits. In other words, entrepreneurial action by the State is apt to be guided by standards of social benefit that cannot be expected of private enterprise. Three cases of this link between the State enterprise and basic policy are given below.

First, there are the countries which think that the State enterprises should only supplement private enterprise, in particular, giving it infrastructural support and supplying the inputs and services it needs; in such cases, the action of State enterprises is adapted to the context of economic *laissez-faire*. One example is the case of Argentina, whose national policies<sup>4</sup> define the role of State-owned enterprises. They provide that the State's industrial activities to meet essential needs, particularly in the social sphere, shall be of a temporary nature or shall be transferred to the private sector if they do not successfully achieve their purpose. They also

<sup>4</sup> Decree No. 46 of 17 June 1970. See "National Policy", No. 124, on activities controlled by the State.

provide that the State shall carry on activities that are necessary to the welfare of the community or connected with basic industries which do not attract private enterprise. In the special case of strategic activities and the exploitation of natural resources, the State shall participate when required to do so in the national interest. In addition, the State shall retain responsibility for the production of those articles and effects that are directly bound up with military needs and which, by their nature, are not suitable for private manufacture.

A second case is that of Peru, where a general industrial law (Decree No. 18350, promulgated on 27 July 1970) was introduced in an attempt to ensure that the State should have the guiding role in the industrialization process, through State control of basic industry.<sup>5</sup> The law reserves the basic industries for the public sector, which, in addition, shall participate, alone or as a partner, in the other industries, when this is in the interest of permanent and self-sustaining industrial development (article 7). In exceptional cases, the private sector, including co-operatives, may participate in the basic industries, provided that a contract is drawn up laying down the conditions and time limits within which the ownership of those enterprises shall revert to the State, after valuation and payment (article 8). Basic industries are considered to be those that produce fundamental inputs for productive activities; they include iron and steel, non-ferrous metals, basic chemicals, fertilizers, cement and paper (article 4 and fifth part of the Decree).

The third case is that of enterprises that operate under a socialist régime. In the case of Cuba, for instance, all industries and services and most agricultural holdings are State-owned. Thus, the criterion for the management of the enterprises consists in bringing them into line with the requirements of the national plan; consequently, business profit is no longer the motive force of production and is not even retained as a standard of efficiency. In addition, through price control, revenue can be transferred to the State on the scale established in the plan.

This brief outline of the roles assigned to the State enterprises in three different cases shows fairly clearly their potential and limitations as policy instruments. Above all, it can

<sup>5</sup> Presidential message from General Juan Velasco Alvarado, published in *El Peruano*, the official gazette, on 30 July 1970.

be seen that the fact that some activity or other is State-run does not necessarily indicate the ideology or objectives of the State. A public enterprise may serve both to support private enterprise and as an instrument of action for a socialist régime; thus, it may subsidize private enterprise—by supplying cheap inputs and services—or it may be an important source of autonomous capital. All depends on the context in which the enterprise operates.

However, the shift of the economic centre of gravity to the large enterprises which are characteristic of the more advanced stages of industrialization gives them new value and importance. Indeed, as was pointed out earlier, that dynamic nucleus can normally be financed only by foreign capital and government funds. This means that there are various possible solutions: first, State ownership of the enterprise; secondly, the transfer of funds to the local private *entrepreneur*; thirdly, the establishment of mixed companies owned partly by the State and partly by local *entrepreneurs*; fourthly, mixed companies in which the State or local *entrepreneurs* combine with foreign interests; and fifthly, foreign ownership of the enterprise. At all events, the policy—or lack of policy—on State enterprises is becoming one of the basic determinants of economic policy. If it is intended to change the nature of that sector of growth and thus influence the basic features of development, the State enterprise may be one of the most direct and efficient instruments of policy. To attract private enterprises to certain sectors, a wide range of profit incentives are available; but if the quality of the type of production undertaken is to be improved, action by the State enterprises is required and has a decisive and immediate effect.

#### 4. *The enterprises that are considered*

This study is not concerned with all the enterprises in which the State invests capital, but only with those that have a legal personality and which, in addition, are of interest because of their contribution to savings and investment. Since they do not have legal personality, the bodies that form part of the central public administration are excluded, although they may carry on activities similar to those which are undertaken by State enterprises elsewhere. For instance, according to the way in which they are organized, the authorities for drinking water supply, urban transport, harbour administration, goods storage, etc., are considered for some countries and not for

others. Moreover, banks, financial institutions and insurance companies are not considered because they are different in character and deserve separate treatment on account of their importance. In particular, certain aspects will be considered from another angle in an article on financial intermediaries to be published in a forthcoming number of the *Bulletin*.

The second condition for the inclusion of public enterprises in this study is that the State should either own all the capital invested in the enterprises or own enough to give it direct control of their policy or management. In other words, it must be for the State to take decisions, such as specifying the volume and destination of output, fixing tariffs and prices, and deciding between alternative technologies. In the case of mixed companies, it will be necessary to decide in each case whether or not the State has the necessary decision-making power when it has only a minority interest. In some cases the State holds shares merely to guarantee a loan, while in others its shares give it a real say in the running of the enterprise. To determine which is true in a given case, it will be necessary to see what kind of enterprise it is, since basically it would be a question of facts, such as the degree of dispersion or concentration of the remaining shares, the composition of its management, etc.

Mention must be made of one thing which has cut down the number of enterprises that have been considered, namely, lack of information on many of them. For this reason, it has not been possible to include, for instance, state or provincial and municipal enterprises, which are quite important in some countries. The real size of the sector has not been explored, and only a few indicators of its scope have been given.

#### 5. *The importance of public enterprises*

For a preliminary appraisal of the importance of public enterprises it is useful to determine their relative importance by means of certain indicators. For this purpose a study will be made of the coefficient of over-all investment in relation to the product, and of the share of investment by the public sector and by public enterprises in gross fixed capital formation for those countries on which data are available (see table 1). In addition, consideration will be given to the position of public enterprises among the thirty most important enterprises of two countries, according to their scale or economic size (see tables 2 and 3).

#### (a) *Contribution of public enterprises to capital formation*

Table 1 shows the investment coefficient in relation to the product and the share of public enterprises and general government in fixed capital formation. It is impossible to generalize since the figures differ widely according to the situation in each country. For instance, between the beginning and the end of the period considered, the proportion of public investment in total investment increased substantially while the investment coefficient in relation to the product declined in Chile, Colombia and Peru; both these ratios increased in Argentina, Bolivia, Mexico and Paraguay and decreased in Ecuador; and public investment remained at the same level in Brazil and Panama while total investment increased. Taking public investment alone, Bolivia, Brazil, Chile and Ecuador show the highest coefficients; and there was a substantial increase in Paraguay between 1962 and 1968. In general, a rising trend is observable in the share of public investment in all the countries except Ecuador and, to a much lesser extent, Panama.

The proportion of investment by public enterprises was highest in Bolivia (nearly 40 per cent of the total); it ranged from 14 to 16 per cent in Argentina, Brazil, Chile and Venezuela, and from 6 to 10 per cent in Colombia, Costa Rica, Panama and Peru. These figures, in general, reflect the existence or absence of large-scale mining, petroleum, energy or communications enterprises, and of extensive State railways networks, which are usually the biggest investors.

#### (b) *Position of public enterprises among the major enterprises*

As regards size, large-scale public enterprises are among those with the most sales and capital in each country. In Argentina and Brazil, in particular, the thirty largest are mainly public and foreign enterprises. Tables 2 and 3 show that 43 per cent of the total sales of the thirty largest industrial and public service enterprises are accounted for by public enterprises, 42 per cent by foreign firms and 15 per cent by local private enterprises. In Brazil, 65 per cent of the liquid net worth of the thirty largest corporations belonged to the public enterprises, 28 to foreign firms and 7 per cent to local private enterprises. In Argentina, the activities of the major public enterprises (nine out of the thirty considered) cover petroleum and gas (43 per cent of total

**Table 1**  
**LATIN AMERICA: RATIO OF GROSS FIXED INVESTMENT TO THE GROSS DOMESTIC PRODUCT, AND SHARE OF THE PUBLIC SECTOR IN TOTAL FIXED INVESTMENT**

Country	Year	Gross fixed investment as a percentage of gross domestic product	Percentage share of public sector in total fixed investment		
			Public sector	General government	Public enterprises
Argentina	1966	17.9	32.6	16.4	16.2
	1969	21.7	37.1	23.1	14.0
Bolivia	1960	14.2	43.2	12.1	31.1
	1968	20.8	50.7	11.6	39.1
Brazil	1960	16.9	40.0	27.2	11.6 <sup>a</sup>
	1965	14.7	46.4	29.9	16.5 <sup>a</sup>
	1968	17.7	39.0	24.8	14.2
Colombia	1960	18.1	16.7	...	...
	1968	17.4	28.0	...	8.7 <sup>b</sup>
Costa Rica	1960	19.0	16.2	11.2	5.0
	1968	17.6	17.8	10.5	7.3
Chile	1961	17.2	41.0	30.5	10.5 <sup>c</sup>
	1964	16.2	45.4	33.7	11.7 <sup>c</sup>
	1968	15.9	54.2	39.0	15.2 <sup>c</sup>
Ecuador	1960	13.4	48.0	...	...
	1969	13.0	40.5	...	...
Mexico	1955	16.7	34.8	...	...
	1960	16.9	...	...	...
	1967	20.3	35.6	...	...
Panama	1960	14.8	19.7	14.8	4.9
	1968	20.9	19.1	8.7	10.4
Paraguay	1962	12.0	19.6	...	...
	1969	14.6	34.9	...	...
Peru	1960	16.8	13.0	7.9	5.1
	1966	21.4	37.5	27.3	10.2
	1968	16.5	...	14.2	...
Dominican Republic	1960	10.5 <sup>d</sup>	...	47.4	...
	1969	18.7 <sup>d</sup>	...	34.3	...
Uruguay	1960	15.1	15.7	...	...
	1967	12.5	18.4	...	...
Venezuela	1960	18.0	...	...	...
	1968	17.7	...	...	15.3

SOURCE: ECLA, on the basis of official statistics.

<sup>a</sup> Including many Federal Government enterprises.

<sup>b</sup> Only some of the public enterprises.

<sup>c</sup> Incomplete data covering the most important public enterprises. Direct investment by the remaining enterprises is not included in total public investment.

<sup>d</sup> General government only, excluding investment by public enterprises.

sales), transport (20 per cent), electricity (18 per cent), steel (11 per cent) and communications (8 per cent). In Brazil, on the other hand, the activities of public enterprises with the highest liquid net worth (thirteen out of the thirty considered) cover electricity (54 per cent), petroleum (22 per cent), steel (9 per

cent), communications (9 per cent) and mining (6 per cent). In assessing the differences between Argentina and Brazil it must be borne in mind that, owing to the kind of data available, different indicators were used (volume of sales for Argentina and liquid net worth for Brazil).

Table 2

## ARGENTINA: THE THIRTY LARGEST INDUSTRIAL AND PUBLIC SERVICE ENTERPRISES ACCORDING TO VOLUME OF SALES, 1969

(Millions of pesos)

<i>Enterprise</i>	<i>Activity</i>	<i>Sales</i>	<i>Ownership</i>
1. Yacimientos Petrolíferos Fiscales ..	Petroleum	214,137	Public
2. Fiat .....	Motor vehicles	182,184	Foreign
3. Shell .....	Petroleum	81,614	Foreign
4. Empresa Ferrocarriles del Estado Argentino .....	Transport	80,630	Public
5. Esso .....	Petroleum	75,098	Foreign
6. Servicios Eléctricos del Gran Buenos Aires .....	Electricity	69,741	Public
7. Sociedad Mixta Siderúrgica Argentina	Steel	66,525	Public
8. Ford .....	Motor vehicles	57,757	Foreign
9. Gas del Estado .....	Petroleum	53,598	Public
10. General Motors .....	Motor vehicles	50,066	Foreign
11. Swift .....	Food	48,942	Foreign
12. IKA—Renault .....	Motor vehicles	48,067	Foreign
13. Empresa Nacional de Telecomunicaciones .....	Communications	48,067	Public
14. Nobleza .....	Tobacco	45,935	Local private
15. Molinos Río de la Plata .....	Food	40,897	Local private
16. Agua y Energía Eléctrica .....	Electricity	38,260	Public
17. Corporación Argentina de Productores de Carne .....	Food	36,568	Local private
18. Chrysler .....	Motor vehicles	32,243	Foreign
19. Sociedad Anónima Franco-Argentina de Automotores (SAFRAR) .....	Motor vehicles	27,524	Foreign
20. Industria Argentina de Aceros (ACINDAR) .....	Steel	27,108	Local private
21. Aerolíneas Argentinas .....	Transport	24,019	Public
22. Goodyear .....	Tyres	24,000	Foreign
23. Alpargatas .....	Shoes with hemp soles (alpargatas)	23,544	Local private
24. Empresa Líneas Marítimas Argentinas	Transport	22,177	Public
25. Celulosa .....	Paper	21,819	Local private
26. Ducilo .....	Chemicals	19,500	Foreign
27. Loma Negra .....	Cement	19,438	Local private
28. Firestone .....	Tyres	18,000	Foreign
29. Pirelli .....	Rubber	17,791	Foreign
30. Mercedes Benz .....	Motor vehicles	17,780	Foreign

SOURCE: For public enterprises, ECLA, on the basis of official statistics; for private national and foreign enterprises, *Mercado*, Buenos Aires, 23 July 1970, p. 45.

(c) *Main sectors in which public enterprises operate*

If the public enterprises existing in each country are examined, they are seen to be of two types (see table 4). In one group of countries—Argentina and Colombia, for exam-

ple—public enterprises are important in certain sectors related to infrastructure (transport, communications and electric power) and the supply of inputs (petroleum in both countries and steel in Argentina). About half the sales of the enterprises considered—excluding the

**Table 3**  
**BRAZIL: THE THIRTY LARGEST CORPORATIONS, ACCORDING TO THEIR**  
**LIQUID NET WORTH, 1969**

(Thousands of new cruzeiros)

<i>Enterprise</i>	<i>Activity</i>	<i>Liquid net worth</i>	<i>Ownership</i>
1. Centrais Elétricas de São Paulo . . . .	Electricity	3,530,845	Public
2. Petróleo Brasileiro—PETROBRAS . .	Petroleum	2,692,649	Public
3. Light—Serviços de Eletricidade . . . .	Electricity	1,954,263	Foreign
4. Companhia Telefônica Brasileira . . .	Communi- cations	1,040,954	Public
5. Companhia Siderúrgica Nacional . . .	Steel	742,094	Public
6. Central Elétrica de Furnas . . . . .	Electricity	680,549	Public
7. Companhia Vale do Rio Doce . . . . .	Mining	679,826	Public
8. S.A. Indústrias Reunidas F. Matarazzo	Manufac- turing	635,161	Local private
9. Centrais Elétricas de Minas Gerais . .	Electricity	500,284	Public
10. Companhia de Cigarros Souza Cruz	Tobacco	495,992	Foreign
11. Companhia Hidro Elétrica do São Francisco . . . . .	Electricity	484,909	Public
12. Companhia Paulista de Fôrça e Luz	Electricity	457,128	Public
13. Volkswagen do Brasil . . . . .	Motor vehicles	454,368	Foreign
14. Rhodia—Indústrias Químicas e Têx- teis . . . . .	Chemicals and textiles	444,100	Foreign
15. Companhia Estadual de Energia Elétrica . . . . .	Electricity	408,470	Public
16. Usinas Siderúrgicas de Minas Gerais	Steel	383,650	Public
17. Pirelli S.A. Companhia Industrial Brasileira . . . . .	Rubber	335,782	Foreign
18. Companhia Geral de Motores do Brasil . . . . .	Motor vehicles	328,825	Foreign
19. S.A. Indústrias Votorantim . . . . .	Manufac- turing	328,764	Local private
20. Mercedes Benz do Brasil . . . . .	Motor vehicles	188,791	Foreign
21. Companhia Paranaense de Energia Elétrica . . . . .	Electricity	283,753	Public
22. Companhia Cervejaria Brahma . . . .	Beverages	252,644	Local private
23. Companhia Siderúrgica Belgo-Mineira	Steel	235,217	Foreign
24. Companhia Aços Especiais Itabira (Acesita) . . . . .	Steel	233,337	Semi-public
25. General Electric S.A. . . . .	Electrical products	226,330	Foreign
26. Esso Brasileira de Petróleo . . . . .	Petroleum	217,575	Foreign
27. Centrais Elétricas de Goiás . . . . .	Electricity	204,023	Public
28. Construções e Com. Camargo Corrêa	Construction	201,658	Local private and foreign
29. Companhia Antartica Paulista . . . .	Beverages	201,123	Local private
30. Refinaria e Explotação de Petróleo União . . . . .	Petroleum	192,963	Foreign

SOURCE: *Conjuntura Economica*, vol. 24, No. 9, 1970, pp. 64-65.

steel companies—are accounted for by the petroleum enterprises. In contrast, there are few public enterprises engaged in manufacturing: in Argentina sales of manufactures by all the enterprises considered amount to only 3.8 per cent of total sales, and in Colombia to 2.2 per cent. In other countries, such as Mexico and the Dominican Republic, however, there

are a good many enterprises engaged in manufacturing, in addition to those providing public services and basic inputs; in the Dominican Republic they account for 30 per cent of total sales and in Mexico for 28 per cent of the total capital of the public enterprises studied. A complete list of the enterprises considered is given in the annex, tables A to G.

**Table**  
**LATIN AMERICA: PARTIAL**

	<i>Unit</i>	<i>Petroleum</i>	<i>Steel</i>	<i>Manufacturing</i>	<i>Electricity</i>	<i>Maritime transport</i>
<i>Argentina (1969)</i>						
Number of enterprises ..		2	1	4	3	3
Number of persons employed .....		43,025	...	6,359 <sup>a</sup>	13,713 <sup>b</sup>	12,688
Capital .....	Millions of pesos	232,180 <sup>e</sup>	...	...	...	...
Sales .....	Millions of pesos	267,735.0	...	19,585.4	38,260.0 <sup>b</sup>	35,205.4
Percentage of total sales		51.6		3.8	7.4	6.8
<i>Brazil (1965)</i>						
Number of enterprises ..		2 <sup>h</sup>	5	3	6	9 <sup>i</sup>
Sales .....	Millions of new cruzeiros	1,877.7	415.1	54.3	122.6	345.3
Percentage of total sales		61.4	13.6	1.8	4.0	11.3
<i>Colombia (1968)</i>						
Number of enterprises ..		1	0	3	1	2
Number of persons employed <sup>j</sup> .....		3,601	...	285 <sup>k</sup>	112	3,569 <sup>l</sup>
Sales .....	Millions of pesos	1,306.4	...	56.8	1.3	359.5
Percentage of total sales		50.4		2.2	0.1	13.9
<i>Chile (1968)</i>						
Number of enterprises ..		1	1	4	1	2
Number of persons employed .....		4,140	7,078	...	7,070	...
Capital .....	Millions of escudos	1,600	79.3 <sup>r</sup>	...	800	...
Sales <sup>s</sup> .....	Millions of escudos	828.0	103.5 <sup>r</sup>	318.8 <sup>t</sup>	276.8	143.0
Percentage of total sales		22.0	25.2	8.5	7.4	3.8
<i>Mexico</i>						
Number of enterprises ..		2	2	26	3	0
Number of persons employed .....		...	...	...	...	...
Capital .....	Millions of pesos	250.0 <sup>v</sup>	700.0	1,202.7 <sup>w</sup>	1,000.65 <sup>x</sup>	...
<i>Peru (1966)</i>						
Number of enterprises ..		1	1	5	0	2
Number of persons employed <sup>cc</sup> .....		1,208	1,451	7,425	...	...
<i>Dominican Republic (1967)</i>						
Number of enterprises ..		1	0	27	1	0
Number of persons employed <sup>cc</sup> .....		...	...	3,157 <sup>g</sup>	...	...
Capital <sup>g</sup> .....	Thousands of pesos	3,000.0	...	52,612.4	37,000.0	...

## INVENTORY OF PUBLIC ENTERPRISES

<i>Air transport</i>	<i>Telecommunications</i>	<i>Trade</i>	<i>Urban transport</i>	<i>Mining</i>	<i>Railways</i>	<i>Other sectors</i>	<i>Total</i>
1	1	0	2	1	1	0	19
5,471	42,353	—	3,912 <sup>c</sup>	2,862	150,141	—	281,524 <sup>d</sup>
...	...	—	...	...	...	—	232,180 <sup>e</sup>
24,019.0	48,066.6	—	3,460.5	2,230.6	80,630.0	—	519,192.5 <sup>f</sup>
4.6	9.2		0.7	0.4	15.5		100.0
...	1	3	...	1	...	0	30
...	32.0	7.5	...	204.1	...	—	3,058.6
	1.0	0.2		6.7			100.0
2	1	1	0	0	1	3	15
591	10,613	...	...	...	11,387 <sup>m</sup>	646	30,804 <sup>n</sup>
41.6	451.4	...	...	...	333.9	38.7 <sup>o</sup>	2,589.6 <sup>p</sup>
1.6	17.4				12.9	1.5	100.0
1	1	2	1	1	1	1	17
...	...	...	...	...	24,000	...	42,288 <sup>q</sup>
...	207.1	...	...	...	...	...	...
139.6	33.1	99.5 <sup>u</sup>	46.9	526.7	332.0	66.7	3,758.1 <sup>d</sup>
3.7	0.9	2.6	1.2	14.0	8.8	1.9	100.0
2	0	6	1	4	4	2	52
...	...	...	...	...	80,000	...	...
128.0 <sup>r</sup>	...	688.7 <sup>s</sup>	...	127.0	150.1 <sup>aa</sup>	41.1	4,288.4 <sup>bb</sup>
1	0	1	0	0	1	2	14
...	...	...	...	...	...	...	10,084 <sup>dd</sup>
1	0	12	0	2	0	2	46
202	...	310 <sup>dd</sup>	...	246 <sup>ee</sup>	...	881 <sup>ff</sup>	4,726 <sup>ww</sup>
830.0	...	12,460.0 <sup>n</sup>	...	21,060.3	...	141,000.0	267,962.7 <sup>hh</sup>

Table

	Unit	Petroleum	Steel	Manufacturing	Electricity	Maritime transport
Sales <sup>11</sup> .....	Thousands of pesos	...	...	47,056.9 <sup>jj</sup>	20,198.7	...
Percentage of total sales				29.9	12.8	
<i>Venezuela (1968)</i>						
Number of enterprises ..		1	1	6	2	3
Capital .....	Millions of bolívares	483.6 <sup>mm</sup>	1,647.8	12,017 <sup>nn</sup>	1,314.0	72.8 <sup>aa</sup>
Sales .....	Millions of bolívares	179.1	418.1	185.1 <sup>q</sup>	272.3	102.2 <sup>aa</sup>
Percentage of total sales		10.7	25.0	11.1	16.3	6.1

SOURCE: As for tables A to G in appendix; for Peru, Instituto Nacional de Planificación, *Plan de Desarrollo Económico Social, 1967-1970*.

<sup>a</sup> Three enterprises only.

<sup>b</sup> Agua y Energía Eléctrica only.

<sup>c</sup> Buenos Aires underground railway only.

<sup>d</sup> Fourteen enterprises only.

<sup>e</sup> Capital of Yacimientos Petrolíferos Fiscales only.

<sup>f</sup> Sixteen enterprises only.

<sup>g</sup> Only some Federal Government enterprises.

<sup>h</sup> Including petroleum and chemicals.

<sup>i</sup> All transport sectors.

<sup>j</sup> Figures for 1970.

<sup>k</sup> Empresa Colombiana de Productos Veterinarios only.

<sup>l</sup> Empresa de Puertos de Colombia only.

<sup>m</sup> Figure for 1969.

<sup>n</sup> Eleven enterprises only.

<sup>o</sup> Excluding Cooperación Autónoma Regional del Quindío.

<sup>p</sup> Thirteen enterprises only.

<sup>q</sup> Four enterprises only.

<sup>r</sup> Millions of dollars.

<sup>s</sup> Sales plus return on investment.

<sup>t</sup> Excluding Petroquímica Chilena, S.A.

<sup>u</sup> ECA only.

## II. THE STATE ENTERPRISES AS AGENTS OF A DEVELOPMENT POLICY

Some data have just been given on the importance of State enterprises in Latin America. It will now be of interest to evaluate their role as agents of development policy, to which end some economic and management problems will be reviewed.

### 1. Economic aspects

#### (a) *Extent of the influence of public enterprises compared with other agents of development policy*

The preparation and application of an economic policy calls for the use of suitable instruments for its implementation. But from the point of view of the State it is not enough to determine the suitability of those instruments in theory; their real workability must also be established. In other words, two things are being discussed: the principles which underlie action in the public and private sectors, and the State's practical possibilities of making its decisions effective.

In particular, there may be a clash of interests between the public sector and some

or all of the private *entrepreneurs* (an obvious example of this is price control). On the other hand, the public sector, by definition, follows government directives; and if, at times, it does not carry out government policy to the letter, this is not due to a conflict of interests or a divergence of objectives, but to practical circumstances such as a rigid organizational structure or inadequate resources. Thus, when there is no direct control of the private sector, an attempt is made to see that its interests coincide with those of the public sector (for instance, through better returns on the type of investment to which the government assigns priority).

However, when the State exercises its decision-making power directly, its influence declines the further the field of action lies from the decision-making centre. This might be represented by a series of concentric circles spreading out from the centre of power. In the centre is the central government, which is responsible exclusively to the national authorities for the action it takes, especially expenditure; next come the local authorities and the

4 (continued)

Air transport	Telecommunications	Trade	Urban transport	Mining	Railways	Other sectors	Total
2,144.0	...	6,405.2 <sup>kk</sup>	...	769.3 <sup>ee</sup>	...	80,692.5	157,266.6 <sup>ll</sup>
1.4		4.1		0.5		51.3	100.0
2	1	4	0	1	2	0	23
356.4	400.0	557.2 <sup>a</sup>	...	...	457.6	...	6,491.1 <sup>oo</sup>
187.5	287.8 <sup>pp</sup>	373 <sup>aa</sup>	...	...	2.1 <sup>qq</sup>	...	1,671.5 <sup>t</sup>
11.2	17.2	2.2			0.1		100.0

<sup>v</sup> Diesel Nacional S.A. only.  
<sup>w</sup> Twenty-five enterprises only.  
<sup>x</sup> Compañía de Luz y Fuerza del Centro S.A. only.  
 No data available for the Comisión Federal de Electricidad.  
<sup>y</sup> Aeronaves de México S.A. only.  
<sup>z</sup> Five enterprises only.  
<sup>aa</sup> Two enterprises only.  
<sup>bb</sup> Forty-four enterprises only.  
<sup>cc</sup> Figures for 1964.  
<sup>dd</sup> Six enterprises only.  
<sup>ee</sup> Salt and gypsum only.  
<sup>ff</sup> Consorcio Algodonero only.

<sup>gg</sup> Registered capital.  
<sup>hh</sup> Forty-five enterprises only.  
<sup>ii</sup> Figures for 1966.  
<sup>jj</sup> Fifteen enterprises only.  
<sup>kk</sup> Seven enterprises only.  
<sup>ll</sup> Twenty-seven enterprises only.  
<sup>mm</sup> State capital.  
<sup>nn</sup> Five enterprises only; two have some State capital.  
<sup>oo</sup> Nineteen enterprises only.  
<sup>pp</sup> Figure for 1967.  
<sup>qq</sup> Instituto Autónomo de Administración de los Ferrocarriles del Estado only.

decentralized agencies, and in the third circle, the State enterprises. The State acts directly in all three areas, the only difference being in the relative simplicity or complexity of the legal and administrative machinery through which it transmits directions or orders. Outside these three circles of direct control there are areas of influence, which include credit and foreign trade policies (particularly regarding imports and exchange rates), action in respect of prices, wages and salaries, and investment outside the public sector. Even further out lies the sphere of the indirect influence exerted by institutions and by financial, credit and development policy.

Thus, in order to determine the current and possible future role of the State, it would be necessary to evaluate the importance of each of the instruments mentioned above in the economy as a whole and the degree of influence exerted by the State on the decision-making centres. But this is not a one-way relationship; the government's capacity to make efficient use of the policy instruments available to it must also be considered. For example, in the case of public enterprises, it is not uncommon for the operations of State enterprises

to be unrelated, restricted to patterns of private enterprise and unconnected with any over-all development policy.

Now that the State enterprises can be seen in this context, an analysis will be made of their role in the formation of capital for investment, their influence on technological policy and on the establishment or expansion of capital goods industries, their contribution to supply, and their role in maintaining market stability.

#### (b) *The formation of capital for investment*

To analyse the influence of public enterprises on the formation of investment capital, it may be useful to examine the financial results of their activities in different countries, and then to point out some of the reasons for this situation, especially for what has happened in respect both of the relative price and tariff levels, and of wages and salaries and investment.

(i) *Financial results of the activities of public enterprises.* In order to obtain a rough idea of the financial results of the activities of the major public enterprises of four coun-

tries for which data are available, two indicators have been used: the operating surplus or deficit in terms of earnings from sales or services, and where there is an over-all surplus, the proportion of capital expenditure covered by the surplus. Subsidies and other current transfers have been deducted from current income as they distort the real financial results of operating the enterprise. Moreover, as these data only apply to one year, they should not be taken as anything more than a rough indication of the true financial situation, which in any case does not necessarily reflect the enterprise's efficiency since a deficit may simply be the result of a government prices policy.

An analysis of these indicators leads to some conclusions that are applicable to all the enterprises considered, and to others that are applicable to only some of the countries. Taking the universe of enterprises considered in each country, the operating surplus is seen to represent 14 and 9 per cent of earnings in Argentina and Chile respectively, while in Colombia it is as high as 32 per cent, and Brazil shows a deficit. Not one of these countries, however, had a large enough over-all surplus to cover fixed investment: in Argentina it financed slightly less than half, in Colombia 40 per cent and in Chile 34 per cent. When compared with total capital expenditure, the figures are naturally lower and stand at around a third for Argentina and Colombia and only 9 per cent for Chile (not including steel, for lack of information).

Taking each country and enterprise separately, it can be seen that a single enterprise in Argentina, Ferrocarriles Argentinos, was responsible for 86 per cent of the total operating deficit of eight enterprises, Yacimientos Carboníferos Fiscales for a further 9 per cent, and others, mainly transport companies, for the remainder. In absolute terms, the biggest operating surpluses come from YPF, the Empresa Nacional de Telecomunicaciones, Agua y Energía Eléctrica and the Sociedad Mixta Siderúrgica Argentina. In only two cases, however, Transportes de Buenos Aires and the Administración General de Puertos were the over-all surpluses large enough to cover capital expenditure (see table 5).

As regards the Brazilian enterprises, which are grouped according to sector, the largest operating deficits were found in transport and communications and the biggest surpluses in chemical and petroleum, mining energy and steel. Nonetheless, it is precisely in energy

and steel that the over-all surplus covers least of the capital expenditure, owing to the high level of investment involved (see table 6).

In Colombia, Ferrocarriles Nacionales accounted for 84 per cent of the combined deficit of five enterprises, the remainder deriving from the Instituto Colombiano de Energía Eléctrica, which constructs generating plants and carries out studies on electrification, the Empresa Colombiana de Aeródromos, the Corporación de la Industria Aeronáutica and the Compañía Nacional de Navegación in descending order. Apart from the Instituto de Mercado Agropecuario, whose operating costs do not include a single item that is large enough to explain the huge earnings which account for its large surplus, the biggest operating surpluses came from the Empresa Colombiana de Petróleo, the Empresa Nacional de Telecomunicaciones and the Empresa de Puertos de Colombia. Only two enterprises, however, the Empresa Colombiana de Productos Veterinarios and the Industria de Concreto (INCO) Ltda., had an over-all surplus that was more than enough to cover their capital expenditure (see table 7).

As to Chile, nine of the fifteen enterprises considered showed an operating deficit: of the total deficit, 60 per cent was accounted for by the Ferrocarriles del Estado, 16 per cent by the Empresa de Comercio Agrícola, 8 per cent by the Empresa de Transportes Colectivos and 6 per cent by the Empresa Portuaria, the five remaining enterprises making up the rest.

The enterprises with the highest operating surpluses include the Empresa Nacional del Petróleo (ENAP), the Compañía de Acero del Pacífico and the Empresa Nacional de Electricidad (ENDESA), but only ENAP and the Empresa de Agua Potable had big enough over-all surplus to cover capital expenditure. There are only fragmentary data available on the capital expenditure of the Compañía de Acero del Pacífico (see table 8).

Taking the enterprises according to type, it can be seen that, as a general rule, the over-all operating surpluses are not large enough to cover capital expenditure, even in the case of the most profitable of them—the petroleum enterprises. Apart from Chile's ENAP, whose earnings in 1968 more than covered its fixed investment and exceeded its capital expenditure by 55 per cent, the petroleum companies considered managed to cover only between 40 per cent (Empresa Colombiana de Petróleo) and 80 per cent (YPF Argentina) of their capital expenditure from

**Table 5**  
**ARGENTINA: INDICATORS FOR SELECTED PUBLIC ENTERPRISES,**  
**BY SECTOR, 1969**  
*(Percentages)*

	<i>Operating surplus</i>		<i>Wages and Salaries</i>
	<i>Earnings</i>	<i>Capital expenditure</i>	<i>Current expenditure</i>
<i>Manufacturing</i>			
Industrias Mecánicas del Estado .....	-0.2	negative	18.6
Talleres de Reparaciones Navales .....	-11.6	negative	66.2
Astilleros y Fábricas Navales del Estado ..	3.0	39.8	43.3
Dirección Nacional de Industrias del Estado	9.4	27.2	34.7
Sociedad Mixta Siderúrgica Argentina (SOMISA) .....	17.3	51.4	...
<i>Mining</i>			
Yacimientos Petrolíferos Fiscales .....	30.7	81.4	25.5
Gas del Estado .....	14.6	26.9	22.3
Yacimientos Carboníferos Fiscales .....	-150.6	negative	40.8
<i>Transport and assimilated sectors</i>			
Empresa Líneas Marítimas Argentinas ....	-0.5	negative	34.8
Empresa Flota Fluvial del Estado Argentino	-21.1	negative	54.7
Administración General de Puertos .....	26.3	135.0	70.6
Transportes de Buenos Aires .....	29.5	462.8	27.6
Empresa de Ferrocarriles Argentinos .....	-41.7	negative	72.3
Subterráneo de Buenos Aires .....	-4.9	negative	74.4
Aerolíneas Argentinas .....	-1.1	negative	33.2
Empresa Nacional de Comunicaciones, Agua y Energía Eléctrica .....	34.7	72.1	73.2
		43.3	49.7

SOURCE: As for annex, table A.

their own resources. Of the electrical enterprises, Argentina's Agua y Energía Eléctrica financed slightly more than 40 per cent of its capital expenditure in 1968, whereas two semi-public state enterprises in Brazil covered, on an average, only 10 per cent of theirs, and ENDESA, in Chile, 26 per cent. The financial situation seems to be rather more alarming in the iron and steel sector, where a study carried out in 1964 by the Latin American Iron and Steel Institute (Instituto Latinoamericano del Fierro y del Acero—ILAFA) showed that, in twenty-two public and private enterprises, re-invested earnings covered a mere 4.6 per cent of total investment. Finally, all the railway companies considered showed current operating deficits.

Looking at the situation of each country separately, it may be concluded that the operation of public enterprises does not generate any appreciable share of investment resources; as

has already been pointed out, the operating surplus was 9 and 14 per cent of earnings in Chile and Argentina and 32 per cent in Colombia, while Brazil showed a deficit—and, in the three countries that show a surplus, this covered only between a third and half of the enterprises' own fixed investment. The figures by type of activity, however, show that petroleum and electric energy enterprises financed quite a substantial percentage of their investment.

(ii) *Price and rate policy.* For an appraisal of the results from a different standpoint, it is useful to examine how far they have been affected by receipts and expenditure, or, in other words, what price and rate policies have been applied, on the one hand, and what wage and investment policies on the other.

Generally speaking, the price and rate policy of a public enterprise is devised according to the function assigned to it at a given time.

**Table 6**  
**BRAZIL: INDICATORS FOR SELECTED PUBLIC ENTERPRISES, BY SECTOR**  
*(Percentages)*

Sector	Year	Operating surplus		Wages and salaries
		Earnings	Capital expenditure	Current expenditure
Mining .....	1960	26.5	62.8	33.3
	1965	47.7	166.2	39.6
Steel .....	1960	18.0	41.7	17.2
	1965	10.2	9.1	28.0
Chemicals and petroleum	1960	16.4	37.2	11.0
	1965	7.6	60.8	11.9
Manufacturing etc. ....	1960	-18.5	Neg.	31.3
	1965	-17.7	Neg.	39.1
Electric energy .....	1960	50.0	0.4	33.3
	1965	42.9	12.3	8.4
Transport .....	1960	-117.0	Neg.	51.7
	1965	-119.5	Neg.	55.3
Communications .....	1960	-358.3	...	69.1
	1965	-262.2	...	95.3
Supply .....	1960	...	...	...
	1965	16.0	a	50.8

SOURCE: As for annex, table B.

<sup>a</sup> Total capital expenditure was negative because of changes in stocks.

**Table 7**  
**COLOMBIA: INDICATORS FOR SELECT PUBLIC ENTERPRISES, 1968**  
*(Percentages)*

	Operating surplus		Wages and salaries
	Earnings	Capital expenditure	Current expenditure
<i>Manufacturing</i>			
Empresa Colombiana de Productos Veterinarios .....	64.4	55.4	62.8
Cementos Boyacá S.A. ....	24.4	...	28.2
Industria de Concreto "INCO" Ltda. ....	13.2	343.6	32.9
Empresa Colombiana de Petróleo .....	18.9	42.4	20.8
<i>Transport and communications</i>			
Compañía Nacional de Navegación .....	-3.1	...	31.1
Empresa Puertos de Colombia .....	24.3	56.8	89.6
Corporación Industria Aeronáutica .....	-60.5	neg.	51.8
Empresa Colombiana de Aeródromo .....	-6.9	neg.	77.3
Ferrocarriles Nacionales .....	-19.9	neg.	69.6
Empresa Nacional de Telecomunicaciones ..	32.2	128.5	77.2
Instituto Colombiano de Energía Eléctrica ..	-660.8	neg.	60.8
Instituto de Mercadeo Agropecuario .....	89.1	69.4	77.2

SOURCE: As for annex, table D.

**Table 8**  
**CHILE: INDICATORS FOR SELECTED PUBLIC ENTERPRISES, 1968**  
*(Percentages)*

	<i>Operating surplus</i>		<i>Wages and salaries</i>
	<i>Earnings</i>	<i>Capital expenditure</i>	<i>Current expenditure</i>
<i>Transport and communications</i>			
Empresa Portuaria (EMPREPORT) .....	-25.1	Neg.	77.8
Empresa Marítima del Estado (EMPREMAR) .....	-59.0	Neg.	38.7
Línea Aérea Nacional (LAN) .....	-7.6	Neg.	34.4
Ferrocarriles del Estado .....	-90.9	Neg.	69.0
Empresa Transportes Colectivos .....	-84.4	Neg.	60.3
Empresa Nacional de Telecomunicaciones ..	31.7	24.0	40.9
<i>Industry</i>			
Industria Azucarera Nacional (IANSA) ...	-1.3	Neg.	13.8
Astilleros Marítimos (ASMAR) .....	-10.1	Neg.	79.7
Fábrica de Material del Ejército (FAMAE)	-21.4	Neg.	50.4
Compañía Acero del Pacífico (CAP) .....	22.8	...	...
<i>Mining</i>			
Empresa Nacional de Minería (ENAMI) ..	9.2	30.9	14.1
<i>Energy and fuels</i>			
Empresa Nacional de Electricidad (ENDESA) .....	36.6	26.2	33.2
Empresa Nacional del Petróleo (ENAP) ..	47.9	155.3	19.9
<i>Trade</i>			
Empresa de Comercio Agrícola (ECA) ....	-78.4	Neg.	17.5
<i>Services</i>			
Empresa de Agua Potable .....	48.1	126.0	67.5

SOURCE: As for annex, table E.

Thus, one school of thought holds that, in descending order of requirements, such enterprises should either produce a surplus, cover their capital expenditure or just show no operating deficit; another holds the view that, for social, political or economic development reasons, it is permissible for them to operate at a loss. These ideas may relate either to all or to certain groups of public enterprises. A brief description of the trends in the real rates of certain enterprises over the last few years is given below.<sup>6</sup>

Except in a few cases, railway rates, measured by average receipts per transport unit, declined in real terms between 1960 and 1968. In passenger transport, they dropped 10 per cent in Mexico, 20 to 30 per cent in

<sup>6</sup> Consumer prices in each country were used as the deflator.

Chile and Peru, and as much as 45 per cent in Uruguay. On the other hand, they improved somewhat in Argentina and Colombia, and remained at about the same level in Brazil. Freight rates plummeted in all countries except Colombia, where there was no change in real terms.

The average prices for electric power charged by the two Argentine enterprises considered fell by about 10 per cent. That of the Comisión Federal de Electricidad de México rose 17 per cent, as a result of changes in the composition of sales by certain groups of users. The average sales price of the main Peruvian enterprise, which is privately-owned, declined 20 per cent, while in Venezuela the State-owned enterprise CADAFE recorded a very slight reduction, and the most important private enterprise a drop of 17 per cent. Average prices of the

Compañía Panameña de Fuerza y Luz dropped by about 30 per cent over the same period. Only in the case of Chile and some Brazilian enterprises were there real increases in average sales prices.

For steel enterprises, the prices considered were those quoted on the principal market of each country, according to the data published by the Latin American Iron and Steel Institute in *Anuario Estadístico*, 1969. From 1965 to 1969, real prices of steel products in Buenos Aires decreased by proportions ranging from 20 per cent for round bars and zinc-plated rolled products to 36 per cent for angles and flat bars. In São Paulo, prices of rolled products fell by about 9 per cent over the same period, but those of all other steel products rose by approximately 5 per cent. The drop in prices in Mexico City ranged from 4.4 per cent for rolled products to 17.5 per cent for wire rod, except in the case of bars for construction purposes, which showed a slight increase. In contrast, Santiago, Chile, recorded a general rise in steel prices.

From a different standpoint, it is interesting to note the trend shown by rates under inflationary conditions. It would seem that the general aim is to prevent increases in rates from contributing to the wages-prices spiral, or to keep down the rates for basic services, so that they usually rise more slowly than the over-all price index. But this has a backlash effect in reducing real income and adversely affecting operating results.

(iii) *Wages and salaries.* For want of information on the particular situation of each enterprise and on national wage policies, a wages to current expenditure ratio was established for the main enterprises in selected countries (see tables 5, 6, 7 and 8). One of the general characteristics that stands out most clearly from these tables is the small share of expenditure accounted for by wages and salaries in petroleum enterprises, the high proportion in railway companies, and the extent to which the ratio varies in electric power enterprises.

(iv) *Investment.* Public enterprises account for a large share of public investment and, therefore, of total investment (see table 1). They play a particularly important role in some sectors such as petroleum, railways and electric power. For example, the State petroleum enterprises in Brazil, Argentina and Mexico absorbed 3.8, 4.4 and 8.2 per cent of total fixed investment, respectively, in the years 1968-1969. As a rule, this investment is not made reg-

ularly every year, since by its very nature it is bound to be sporadic, i.e., whenever any of the existing activities are expanded or new activities started. Investment of this kind has important economic effects. First of all, as has been shown above and is analysed in greater detail in section III, they play a decisive role in certain key sectors of the economy, whose installed capacity is based essentially on investment by public enterprises. Moreover, in addition to current expenditure, it represents considerable purchasing power, which, if properly co-ordinated, could have a decisive effect either on imports or on domestic industry. This is particularly significant in the case of capital goods. The purchase made, for example, by transport (particularly railway and shipping), petroleum, electricity, and steel enterprises are large enough to stimulate the operation of a domestic industry for the production of certain goods. In fact, there are two alternatives: either the goods are imported, which may mean quicker delivery and easier foreign financing terms, or steps are taken to promote a domestic industry, with all the multiplier effects that this involves.

Some of the policies adopted may be mentioned in this connexion. In Brazil, the machinery requirements of PETROBRAS reactivated the companies producing petroleum equipment and led to the merging and reorganization of private enterprises; and the orders of State-owned shipping enterprises—particularly Lloyd Brasileiro—helped to promote the activities of Brazilian shipyards to a point where, early in 1969, fifty ships were under construction with a total deadweight tonnage of 484,000.<sup>7</sup> In Argentina, demand from the State railways was of key importance in promoting the domestic production of railway equipment by private firms. To sum up, although the solutions to be adopted should be evaluated within the context of an over-all plan, it should be noted that co-ordinated purchasing by public enterprises could multiply the effects of the decisions adopted.

#### (c) *Technological policy*

A technological policy covers technological research and the adaptation and choice of techniques. One of the salient features of Latin American technological policy is the absence of any consistent thinking or action. This general observation also embraces public enterprises—and yet, they are particularly fitted to

<sup>7</sup> See ECLA, *Economic Survey of Latin America*, 1969, Part Three, chapt. III.

do research and adapt techniques. In the first place, they are among the largest enterprises, sometimes operating on an international scale. It is a well-known fact that considerable economies of scale can be achieved in this field, and that it is not until enterprises have attained a certain size that they can do original research or study adaptations of know-how with any degree of independence or hope of success. Moreover, since these enterprises do not necessarily have to make profits, they can undertake activities which are of greater benefit to the community than to individuals. In particular, the fact that other enterprises may take advantage of the innovations they develop does not hamper progress but, on the contrary, helps towards raising the level of technology. This is the opposite approach to that adopted by private enterprises, which try to keep for themselves the benefits of every technical improvement they introduce. Furthermore, public enterprises are usually in strategic or dominant positions within the economy and thus have a catalysing effect on allied activities. For all these reasons, public enterprises could well constitute a key instrument in implementing technological policy, provided that the appropriate standards and priorities were established.

The research can be carried out by the enterprise concerned or by a specialized research organization, which may sometimes be another public enterprise. To illustrate this point, it is useful to consider Chile's experience. Research has been undertaken on behalf of different sectors of activity for many years now. For example, CORFO carried out experiments for its mining enterprises; they consisted in treating copper ore oxides by flotation and dry sulphurization, thus making it possible to exploit mixed copper ore or copper found in dry areas with a considerable saving on sulphuric acid and scrap iron. The Industria Azucarera Nacional, S.A. investigated the uses that could be made of the by-products of its alcohol distilleries, with a view to obtaining a synthesis of different types of yeast that would provide products with a high protein content. The Empresa Nacional de Semillas carried out experiments in plant-breeding and many other enterprises did research in different fields according to their needs. Without prejudice to these activities, the Chilean Technological Institute (Instituto Tecnológico de Chile) was established in 1969 as a subsidiary of CORFO, to operate as a technological pool, mainly under research contract with the interested enterprises. Under this system the Institute operates

as if it were temporarily the research department of the enterprise concerned. In providing this service, the Institute has the advantage of having at its disposal multidisciplinary groups of specialists and instruments and equipment, costing a great deal to purchase and maintain, which can be easily moved to wherever they are required. It is at present doing research for certain State enterprises in the fields of electronics, engineering, chemicals, mining, food, plastics, metallurgy, inorganic chemistry and mechanical engineering.

Certain variations of the methods that have been tried out by public enterprises in Chile are found in other countries, the main difference being that the agency responsible for centralizing the research is not an enterprise with legal personality but a decentralized government agency. A case in point is the National Institute for Agricultural Technology (Instituto Nacional de Tecnología Agropecuaria) in Argentina, which was set up in 1956, whose research, among other improvements, led to a substantial increase in maize and wheat yields and a revolution in potato growing. It also carried out special research projects which were useful to the public enterprises.

From a different standpoint, State enterprises are subjected to "technological pressure" from outside, owing to advances in foreign know-how. This is very clear—even brutally so—when State enterprises are competing in the international market, for instance, when Latin American national airlines flying to Europe and the United States have to keep on changing their equipment, although the discards are perfectly serviceable and adequate for their needs.

#### (d) *Share of public enterprises in supply*

The share of public enterprises in the supply of goods and services is highly unequal and varies according to the activities concerned. It is considerable in the case of public utilities such as electricity supply and railway transport in most of the Latin American countries. State shipping companies have less of a monopoly than railway enterprises, possibly because they do not have to face competition from other forms of transport. Nationally-owned airlines carry about 45 per cent of the total passenger traffic and 40 per cent of the freight. In some countries, State-owned petroleum and steel enterprises contribute a significant proportion of total supply. The fact that they provide essential inputs is of great importance in the implementation of economic policy. On the

other hand, public enterprises play scarcely any part in other industrial and commercial activities.

(e) *Role in regulating the market*

Measures to regulate the market mainly affect supply and prices. In both these respects, they lie outside the sphere of competence of the great majority of the public enterprises considered, which are mainly concerned with infrastructure or activities in which conditions—particularly prices—are not determined by the free play of market forces but by the decisions of—or agreements between—the large enterprises, or by administrative decisions (especially in the establishment of rates). Public enterprises engaged in manufacturing rarely exercise enough control to regulate the market. On the other hand, State enterprises carry more weight in the marketing of food-stuffs. The activities of Chile's Agricultural Marketing Enterprise (Empresa de Comercio Agrícola—ECA), which was established in its present form in 1960, are a good example of this. Its function is to ensure a steady supply of agricultural products and, to that end, to adopt the necessary measures to rationalize the marketing system. In order to regulate supply, it purchases the right quality of whatever products are needed on the domestic or external market, stores them in its own cold-storage plants, silos and warehouses, and puts them on the market at the right moment and at a reasonable price when private sources cannot cope with demand. The products usually imported are beef (chilled or frozen, or on the hoof), pork and poultry, powdered milk, butter oil, butter, cheese, wheat, maize, rice and potatoes, purchases of which amounted to about 64 million dollars in 1967. Another of ECA's functions is to buy products from producers for which they cannot find an outlet—especially seasonal crop surpluses—offering compensatory support prices. Lastly, ECA is endeavouring to rationalize the marketing process; it has organized many producers' co-operatives for this purpose.

The wine industry in Argentina provides another example of market regulation by a State enterprise. The largest wine vaults—the Giol vaults in Mendoza—are owned by the provincial government, and in 1967 it was compelled to purchase 2.5 million quintals of grapes to prevent a slump owing to over-production. This cost 300 million pesos, which resulted in a loss in the 1967-1968 financial year.

## 2. *Management problems*

### (a) *Integration in the public sector*

The State bodies which carry on commercial and industrial activities and which, in that capacity, are called State enterprises, may have the legal form of firms managed directly by the State, public enterprises and corporations, and mixed or semi-public companies in which the State has shares.

State-run firms have no legal personality of their own and are directly responsible to the central government. Public enterprises are entirely State-owned but have their own legal personality and are subject to public or private law, according to their function. Public corporations are organized in a legal form which makes them subject to private law; they are limited companies in which the State is the only shareholder. Lastly, semi-public companies are those in which the State and private persons have shares: they normally take the form of joint-stock companies.

These different kinds of enterprise presuppose different types of management or State control and, hence, of integration in the public sector. In the first case, that of State-run firms there is the normal hierarchy that prevails in any public administration. Public enterprises may be responsible to a ministry or a parent body, which is usually responsible for appointing managerial staff and laying down policy guidelines. In public corporations, on the other hand, management or control is exercised from within the company, through the normal decision-making machinery, subject to private law; however, as the State is the only shareholder, the managerial staff are appointed by decree or administrative decision. This is also the case for semi-public companies, where, according to the extent of State participation, government officials operate the company or have a minority voice in decision-making. It is common in such cases for the chief government representative to have the right of veto. The government can give itself even greater freedom of action by creating different types of shares, reserving certain privileges for those which it owns.

In the cases considered, each enterprise or, from a wider angle, each group of enterprises, is under separate management. Various methods have been used to operate a group of enterprises jointly. One consists in administrative co-ordination, which may range in form from machinery for consultation to the setting up of a ministry to control the State enterprises.

Another method consists in the creation of a holding company, which purchases shares in the firms that it wishes to manage or supervise. The State body that administers this holding company may be a government department or another holding company. The best known case of a holding company which holds other holding companies is the Istituto per la Ricostruzione Industriale (IRI) in Italy, which holds shares in enterprises in certain industrial sectors and at the same time is responsible to the ministry dealing with State participation in enterprises.<sup>8</sup>

More recently, the need to make better use of their resources for the purpose of maximum expansion has led some of the more powerful enterprises to form conglomerates. These group together widely different enterprises under a common ownership, with centralized management and a pool of financial, technological and human resources which is controlled by the executive centre in accordance with an overall plan. Thus, resources are concentrated in one centre of power, which decides what new enterprises should be set up or purchased, or what new technology is to be employed. These conglomerates do not attempt a vertical grouping by sector or branch of technology, but are a horizontal grouping of the most diverse enterprises, in which financing is the only common link.

An outstanding example of this type of conglomerate in the Latin American context is the Chilean production development corpora-

<sup>8</sup> IRI policy decisions are taken by the Council of Ministers and are carried out by its directors, who are appointed by the President of the Republic, the Prime Minister and different administrative departments, as the case may be. The managing director is nominated by the Chairman of the Board of Directors and is appointed by executive decree. The enterprises controlled by IRI operate through a special organization in which control of each branch of activity is exercised by a holding company (STET, telephones; Finmare, maritime transport; Finsider, steel; Finmeccanica, metal-transforming; Fincantieri, shipbuilding; Finelettrica, electric energy). In addition, an important group of enterprises is not controlled by these holding companies, such as the banks, Alitalia, Autostrade, Radiotelevisione Italiana, etc. Each holding company holds shares in the companies that operate in its sector; they appoint the senior staff and decide on the policy orientation of subsidiaries in consultation with IRI. At the same time, they have sole authority for decisions as to how the policies shall be implemented. To give an idea of the size of these holding companies, it is enough to mention one of them, the Societa Finanziaria Siderurgica (Finsider), 54.1 per cent of whose capital is owned by IRI, which produces 58 per cent of national steel output, through twenty-seven enterprises, including Italsider, Dalmine, Terni, Terninox and Breda.

tion, CORFO, and its eighty-one subsidiaries that operate in the most diverse fields (agriculture, fishing, wood pulp, mining, metal transforming, coal, communications, films and television, energy, electronics, petroleum, petrochemicals, chemicals, construction, steel and metallurgy, tourism, and multisectoral support organizations). As a rule, these enterprises take the form of limited companies, in which CORFO holds some or all of the share capital and appoints a corresponding number of the directors (see table 9).

CORFO has used several methods to make these enterprises adapt their policies to an over-all or, at least, sectoral approach. The first method is through CORFO's annual contribution to the budget of each enterprise, since, when the level of this contribution is being considered, the proposed programmes are discussed with the enterprise's directors and managers. In this way, although actual operations are decentralized, CORFO can influence the objectives and the choice of instruments for carrying out the plans. Another way in which CORFO can bring its influence to bear is through the benefits and exemptions it grants, which are of help to the enterprises but cannot be obtained without a decision or the consent of CORFO; examples are guarantees for obtaining external financing, and the granting of certain exemptions and internal loans. Thus, the action of the government appointees on the Boards of Directors of the enterprises is important, for they usually receive instructions from CORFO about certain basic problems. This is particularly so in respect of policy on prices, wages, investment and loans. These relations, and permanent contact with the enterprises, are maintained through the management of the CORFO subsidiaries. Lastly, it should be pointed out that fundamental problems of policy and orientation are discussed between the executive vice-president of CORFO and the executive staff of the enterprises.

Currently, CORFO is grouping the enterprises together according to activity, so that their action may be co-ordinated in each sector, under a management that establishes general policy, but with each enterprise maintaining its autonomy of operation.

In short, it may be concluded that the legal forms of organization of public enterprises vary not only according to needs, but also according to the manner in which they were incorporated in the public sector and State policy in this respect. The adoption of measures that eliminate or lessen the "insularity" of those

**Table 9**  
**CHILE: SUBSIDIARIES OF CORFO, 1969**

		Authorized capital (millions of escudos <sup>a</sup> )	Paid-up capital	Share of capital assets held by the government (percentages)			
				CORFO subsidiaries	Other public bodies	CORFO	Total government share
<i>Agriculture and livestock</i>							
Agriculture	Soc. Agrícola CORFO Ltda. (SACOR)	1.0	1.0	1.00	—	99.00	100.00
	Empresa Nacional de Semillas S.A.C.	10.0	6.3	—	52.29	47.71	100.00
Agricultural industries	Soc. de Construcciones y operaciones agropecuarias S.A. (SOCOAGRO)	10.0	8.4	1.19	1.19	97.62	100.00
	Soc. Lechera Nacional Ltda. (SOLECHE)	5.6	5.6	—	50.00	50.00	100.00
	Industria Azucarera Nacional (IANSÁ)	200.00	198.1	—	—	99.75	99.75
Services	Servicio de equipos agrícolas mecanizados (SEAM)	...	...	...	...	...	...
	Empresa Nacional de Frigoríficos (ENAFRI)	3.0	2.2	—	30.23	69.77	100.00
Marketing	VINEX	4.6	4.6	—	99.99	0.01	100.00
Research	Instituto de Investigaciones agropecuarias	...	...	...	...	...	...
<i>Fisheries</i>							
Fishing	Empresa Pesquera de Tarapacá S.A. (EPESA)	24.8	24.8	—	—	98.77	98.77
	Cía. Pesquera Arauco S.A.	30.0	20.9	—	26.24	73.76	100.00
	Pesquera Iquique S.A.	19.3	19.3	—	—	49.00	49.00
	Pesqueras Unidas S.A.	...	...	...	...	...	...
	Pesquera Guanayo S.A.	23.0	22.9	—	—	49.00	49.00
	Pesquera Indo S.A.	40.0	21.6	—	—	47.44	47.44
	Soc. Pesquera Coloso S.A.	21.5	21.4	—	—	39.77	39.77
	Marco Chilena S.A.I.C.	\$U.S.4.0	\$U.S.1.5	—	—	45.00	45.00
Marketing	Soc. de Terminales Pesqueras Ltda. (SOTEPE)	...	...	...	...	...	...
Research	Instituto de Fomento Pesquera (IFOP)	...	...	...	...	...	...
<i>Forestation, timber and wood pulp</i>							
Forestry	Soc. Agrícola y Forestal Lebu Ltda.	1.0	0.5	—	—	100.00	100.00
	Forestal Arauco Ltda.	5.5	5.5	—	—	94.50	94.50
	Forestación Nacional S.A. (FORESTANAC)	9.0	2.7	—	—	14.87	14.87

Timber .....	Laminadora de Maderas S.A. Impregnadora de Maderas S.A. (IMPREGNA) Maderas y Sintéticos S.A. (MASISA) Forestal Pilpilco S.A. Bosques Industrias de la Madera S.A. (BIMA)
Pulp and paper .....	Soc. Celulosa de Construcción S.A. (CELCO) Industria Celulosa Arauco S.A. Industrias Forestales S.A. (INFORSA) Papelería del Pacífico S.A. (PADELPA)
Research institute .....	Instituto Forestal
<i>Mining of metals</i>	
Mines .....	Cía. Minera Carolina de Michilla Cía. Minera Cerro Negro S.A. Cía. Minera Chañaral y Taltal S.A. (CHATAL) Cía. Minera Las Chivas Cía. Minera Loica Ltda. Cía. Minera Tamaya S.A. Cía. Minera Aysen Cía. Minera Maipú Ltda. Empresa Minera de Mantos Blancos S.A. Cía. Minera Angelita Ltda.
Research .....	Instituto de Investigaciones Geológicas Instituto de Investigaciones Mineras
<i>Coal mining</i>	
Coal mining companies ..	Cía. Carbonífera Victoria de Labu Cía. Carbonera Pilpilco Cía. Carbonera de Colico Sur S.A.
<i>Communications and broad- casting</i>	
Communications .....	Empresa Nacional de Telecomunicacio- nes S.A. (ENTEL) Cía. de Teléfonos de Chile S.A.
Films and television ....	Estudios Cinematográficos de Chile S.A. "Chile Films S.A." Televisión Nacional de Chile S.A.

3.2	2.3	...	...	...	...
1.0	1.0	—	17.26	76.71	93.97
10.0	4.4	—	—	17.88	17.08
6.2	6.2	—	—	77.15	77.15
100.0	...	—	—	41.49	41.49
4.0	4.0	—	—	66.25	66.25
\$U.S.13.5	\$U.S.11.4	—	—	62.40	62.40
24.0	24.0	—	—	49.98	49.98
15.6	10.5	—	—	48.31	48.31
...	...	...	...	...	...
\$U.S.4.0	\$U.S.3.2	—	—	25.00	25.00
8.0	4.8	26.13	63.87	10.00	100.00
0.6	0.6	—	—	33.46	33.46
0.1	0.1	99.90	—	0.10	100.00
3.0	...	—	—	33.33	33.33
2.0	1.5	—	—	30.00	30.00
0.5	...	—	—	100.00	100.00
0.2	0.2	—	—	30.00	30.00
\$U.S.3.3	\$U.S.13.3	—	—	5.73	5.73
0.4	0.4	—	—	51.00	51.00
...	...	...	...	...	...
...	...	...	...	...	...
5.4	4.3	0.03	—	99.97	100.00
3.5	2.6	4.85	—	95.15	100.00
1.6	1.6	0.06	—	99.94	100.00
253.0	207.1	0.10	0.22	98.76	99.98
364.0	346.1	—	—	2.93	2.93
0.1	0.1	—	—	85.63	85.63
13.7	12.9	20.00	—	80.00	100.00

Table 9 (continued)

		Authorized capital (millions of escudos <sup>a</sup> )	Paid-up capital	Share of capital assets held by the government (percentages)			
				CORFO subsidiaries	Other public bodies	CORFO	Total government share
<i>Energy</i>							
Enterprises	Empresa Nacional de Electricidad S.A. (ENDESA)	800.0	800.0	—	—	96.03	96.03
	Cía. Chilena de Electricidad (CHILECTRA)	\$U.S.22.0	\$U.S.22.0	—	—	90.52	90.52
	Soc. Geotécnica del Tatio S.A.	0.3	0.3	—	—	51.00	51.00
<i>Electronics</i>							
Enterprises	R.C.A. S.A. Electrónica	6.5	6.5	—	—	33.33	33.33
	Empresa Electrónica Nacional (ELECNA)	8.0	4.2	—	—	100.00	100.00
<i>Petrochemicals and chemicals</i>							
Petroleum and petroleum products	Empresa Nacional de Petróleo (ENAP)	1,600.0	1,600.0	—	—	100.00	100.00
Basic organic chemicals	Petroquímica Chilena S.A.	100.0	52.4	49.75	—	50.25	100.00
	Química Alquil S.A. (ALQUISA)	1.0	...	10.00	—	10.00	20.00
Basic inorganic chemicals	Soc. Química y Minera de Chile S.A.	\$U.S.40.0	\$U.S.32.3	—	—	34.25	34.25
	Fábrica de Acido Sulfúrico S.A.	0.3	0.3	—	—	95.60	95.60
Fertilizers	Cía. Sudamericana de Fosfatos S.A. (COSAF)	15.0	15.0	...	...	...	...
	Soc. Chilena de Fertilizantes Ltda. (SOCHIF)	0.5	0.5	—	6.25	93.75	100.00

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<i>Construction</i>		
Construction materials ..	Vibrocret S.A.	1.0
	Fábrica de Cemento de Antofagasta	...
<i>Steel and metal transforming</i>		
Steel .....	Compañía de Acero del Pacífico (CAP)	\$U.S.100.0
Metal transforming .....	Maestranza y Fundición Antofagasta S.A.	3.0
	Industrias de Conjuntos Mecánicos Aconcagua S.A.	\$U.S.5.0
	Fundición y Elaboración de Metales S.A.	...
	Centro de Servicios Metalúrgicos S.A.	0.6
	Astilleros del Norte S.A. (ANSA)	0.4
	Ramsomes Chilena S.A.	0.1
<i>Tourism</i>		
Enterprises .....	Hotelera Nacional S.A. (HONSA)	60.0
	Inmobiliaria Portillo S.A.	0.5
	Soc. Inmobiliaria San Cristóbal S.A.	9.4
<i>Multisectoral support organizations</i>		
	Instituto de Investigación de Recursos Naturales (IREN)	...
	Instituto Tecnológico de Chile	...
	Instituto Nacional de Capacitación Profesional (INACAP)	...
	Empresa de Servicios de Computación Ltda.	15.3
	Soc. Inmobiliaria de Exposiciones	2.6
	Empresa de Transporte Masivo Metropolitano	291.0
	Instituto de Costos	...
	Servicio de Cooperación Técnica (SERCOTEC)	...

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SOURCE: CORFO, subsidiaries management department.

<sup>a</sup> Except where otherwise indicated.

0.6	—	—	30.48	30.48
...	...	...	...	...
\$U.S.79.3	—	14.49	37.47	51.96
3.0	—	—	99.67	99.67
\$U.S.5.0	—	—	75.00	75.00
...	...	...	...	...
...	—	—	90.90	90.90
0.4	—	—	10.00	10.00
0.1	—	—	60.00	60.00
45.8	—	—	85.54	85.54
0.5	—	—	0.22	0.22
9.4	—	—	25.00	25.00
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...
15.3	0.26	—	99.74	100.00
2.6	—	—	38.20	38.20
...	—	99.60	0.40	100.00
...	...	...	...	...
...	...	...	...	...

enterprises and permit their co-ordinated action, may mean, depending on the policy of each individual country, anything from an exchange of information and improved communications between enterprises to unified management and the pooling of certain resources (for instance, financial and technical resources and managerial capacity).

(b) *Some links with the private sector*

The links between enterprises in the public and private sectors depend essentially on the general environment in which they operate. However, to take one particular aspect, it may be useful to specify certain attitudes and value judgements on the part of private *entrepreneurs*, which vary according to the public activity they carry on. For instance, in the creation of an infrastructure and provision of public utilities, there is normally complementarity between the public and the private enterprises, since these are activities with a strong element of risk that require substantial investment with slow and unprofitable returns—which is why the private sector is in favour of State action in this sphere.

However, when the State enterprises are competitors, particularly in commerce and manufacturing, private *entrepreneurs* may consider this an invasion of their territory. The main cause for complaint is that the two types of enterprise are not competing on the same footing, since the State enterprises are not bound to make a profit. In other words, they are fighting in the same ring, but one of the opponents is handicapped by fear of a deficit and the other is not. Other objections are that the State enterprises normally have easy access to financing and sometimes that they get tax exemptions. In addition, the action of the State is criticized when it tries to attract resources through price or tariff control, since this is a form of capital accumulation.<sup>9</sup>

(c) *The directors of public enterprises*

Whether or not there is a class or group of *entrepreneurs* in the public sector who act as directors or managers for the State “producer”<sup>10</sup> and whose behaviour is supposed to differ from

<sup>9</sup> In this connexion, see Ignacy Sachs, *Patterns of Public Sector in Underdeveloped Economies* (Bombay, Asia Publishing House, 1964).

<sup>10</sup> See Ricardo Cibotti and Enrique Sierra, *El sector público en la planificación del desarrollo, Textos del Instituto Latinoamericano de Planificación Económica y Social* (Editorial Siglo XXI, Mexico, and Editorial Universitaria S.A., Santiago, Chile, 1970).

that of private *entrepreneurs* and civil servants is a very controversial question. In theory, the fact that both public and private enterprises produce specific goods and services using much the same techniques obliges them to comply with certain operational requirements. A steel works, a transport enterprise or an electricity plant must produce in a certain way, which does not vary whether they are controlled by public or by private interests. But the objectives of the two types of enterprise may be very different. In the private enterprise, the main goal is to expand the volume of sales and increase profits. In the public enterprise, on the other hand, the motive force is not profit, but meeting certain standards outlined by the central government; for instance, they must supply the right type of goods at prices that are fixed, not necessarily by market requirements but by political decisions in many cases.

Another point of difference is where the managers come from: managers of public enterprises are chosen by a governing group according to a criterion similar to that used in appointing the heads of government departments, i.e., for their technical skill and political suitability. But they may have been trained in the private or the public sector. In the first case they give particular attention to management efficiency, which involves precise controls and well-defined tasks; the clearest and most exact indicator of such efficiency is the amount of profit made. The other case is that of managers trained in the public sector, generally in the same enterprise, whose interests they have at heart. They are not usually concerned with financial management and the question of risk, and they accept as a criterion for evaluation whether or not they have carried out the plan, or expanded the enterprise, or met the standards of quality for the goods and services produced.

But perhaps the most outstanding point of contrast is the nature of the power exercised by the two types of *entrepreneur*; on the one hand, the power of the private *entrepreneur* is based on his freedom to do as he likes with the profits he generates, which he may use for consumption or investment—in the same or in other enterprises—at his discretion. On the other hand, the director of a public enterprise cannot do as he likes with the earnings of the enterprise, and his job does not depend on any possible losses. His power lies in the size of the staff at his command, the importance of the goods he produces and the services he

provides; but his power is not his own and is not based on ownership, but, in the last analysis, is dependent on a government decision.

For all these reasons it may be concluded that the director of a public enterprise has characteristics of both the private *entrepreneur*

(particularly as regards the actual work he does) and the civil servant (as regards the manner of his appointment, the objectives and nature of his powers); but that, when all is said and done, he is more an official than he is a captain of industry.

### III. IMPACT OF PUBLIC ENTERPRISES IN THE MAJOR SECTORS IN WHICH THEY OPERATE

The brief over-all view presented in table 4 indicates the dominance of public enterprise in sectors of the economy related to the infrastructure and the supply of certain services and inputs. The following sections will describe in broad outline the role played by public enterprises in rail, maritime and air transport and in the petroleum, electric power and steel sectors. As the intention is not to discuss the over-all operation of these sectors but rather to indicate the role of public enterprise in them, the sections that follow will be confined to describing the relative importance of public enterprises in each sector of activity and the financial results of their operations.

#### 1. Railway enterprises

##### (a) Relative importance

In Latin America, virtually all rail transport is in the hands of State enterprises. Argentina, Brazil and Mexico head the list, each with between 25,000 and 28,000 million technical traffic units,<sup>11</sup> followed by Chile (4,600 million) and, in descending order, Colombia, Peru and Uruguay (ranging between 1,500 and 1,000 million).

The only private enterprise in all these countries is the Peruvian Corporation Limited, with 610 million TTU (see table 10). In the other countries of the region, rail transport is of relatively small importance and the TTU figures are not very significant.

In order to gauge the relative importance of railway systems, it is useful to look at total operating costs and the number of staff employed, since capital costs vary a great deal from year to year. Railway operating costs in Argentina and Mexico range between 17 and 18 per cent of general government consumption expenditure, while in Chile the correspond-

ing figure is 12 per cent, in Brazil 9 per cent and in Colombia 5.5 per cent. The labour force employed by railway enterprises ranges from close to 160,000 in Argentina and Brazil, to 80,000 in Mexico, 24,000 in Chile and slightly more than 11,000 in Colombia. The comparatively small size of the labour force employed in the Mexican railway system—half that of Argentina and Brazil with roughly the same traffic level—is due to differences in the ratio of freight ton/kilometres to passenger/kilometres, which is 5 to 1 in Mexico whereas in the other countries it is roughly equal.

##### (b) Financial results of operations

Around 1950, the financial balance on operations of the Latin American railways began to move into the red. Contributory factors included failure to renew equipment in good time and insufficient expenditure on equipment and track maintenance, together with policies to maintain rates at low levels, and competition from other means of transport. Furthermore, the railways have sometimes been used as a means of creative employment, which has helped to swell operating costs.

In 1960, the operating coefficient (ratio of operating costs to operating income)<sup>12</sup> expressed as a percentage was close to 200 in Brazil and Uruguay, over 150 in Argentina and Chile, and between 111 and 116 in the remaining countries. Two years later, the situation had worsened appreciably, and the coefficient had risen to above 250 in Brazil and Uruguay, above 200 in Argentina and Chile, while in Colombia, Mexico and Peru it remained fairly low (between 124 and 134). A comparison of these figures with those for 1968 shows that there had been a definite improvement. In Brazil, the coefficient had re-

<sup>11</sup> Technical traffic units (TTU) are equal to the sum of ton/kilometres and passenger/kilometres, and are an indicator of traffic volume.

<sup>12</sup> Subsidies and other income not connected with operations was excluded from operating income; and expenditure on renewals of equipment was not included under operating expenditure.

**Table 10**  
**LATIN AMERICA: EMPLOYMENT WAGES AND PRODUCTIVITY**  
**IN THE RAILWAY SYSTEMS**

	Year	Staff employed (thous- ands)	Average wage (dollars at 1960 prices)	TTU per person (thous- ands)
Argentina .....	1950	189	1,792	155
	1960	211	1,607	146
	1968	156	1,649	177
Bolivia .....	1968	6	1,043	98
Brazil .....	1950	200	892	92
	1960	204	1,135	128
	1968	157	1,206	166
Colombia .....	1950	14	1,189	96
	1960	11	1,189	130
	1968	11	1,572	131
Chile .....	1950	22	2,579	187
	1960	25	2,948	157
	1968	24	2,502	183
Mexico .....	1952-1954	86	...	165
	1960	69	1,719	263
	1968	80	2,436	313

SOURCE: ECLA, *El Transporte en América Latina* (United Nations publication, Sales No.: 65.II.G.7); Asociación Latinoamericana de Ferrocarriles (ALAF), *Anuario Estadístico Latinoamericano*, 1968.

turned to its 1960 level (192), but in Uruguay it had remained extremely high (233), while in Argentina, Chile and Mexico it had not moved from the relatively high level of 143. In Peru, the financial situation of the railways had not varied a great deal, and only Colombia had been able to achieve an operating surplus (see table 11).

The data given above reflect the position of the main railway systems in each country and not the individual situation of some enterprises or lines that may be in quite a different financial position. For example, the most important railway enterprise in Brazil, the Rede Ferroviaria Federal S.A., had an operating coefficient of 186 in 1968; in Peru the State railways had a coefficient of 186 in 1968; in Peru, the State railways had a coefficient in 1968 (including equipment renewal costs) of 135, while the Peruvian Corporation Limited was virtually in balance.

It is difficult to make an objective appraisal of the operating deficits represented by coefficients of above 100 in the various countries. One method is to compare the absolute values of deficits with operating costs. In Brazil, Chile and Uruguay, the deficit amounts to about half the operating costs, and in Argentina, Mexico and Peru it ranges from 26 to 30 per

cent. Taking another yardstick, the deficit as a proportion of total general government consumption expenditure gives a figure of between 16 and 18 per cent in Argentina, Chile and Mexico, and 9 per cent in Brazil. These figures show the seriousness of the financial position of the railways and its impact on increases in government expenditure under the head of transfers.

The following paragraphs will describe developments that have either improved or worsened the financial situation of railway enterprises between 1960 and 1968.<sup>13</sup>

It is clear from table 11 that during the period 1960-1968 three of the seven countries considered reduced their operating deficit over the period, three increased it and only Colom-

<sup>13</sup> For purposes of comparison, the average values and prices for 1968 were deflated using cost-of-living indexes, with 1960 taken as the base year at 100. For Mexico the implicit price deflator of the gross domestic product was used. The ratio of technical traffic units to labour employed was taken arbitrarily as an indicator of labour productivity. This indicator becomes less meaningful as the difference between the two types of traffic increases. For example in Mexico average productivity per person employed is 1.8 times greater than in Argentina, owing to the fact that, as noted above, freight traffic is much more important than passenger traffic.

**Table 11**  
**LATIN AMERICA: FINANCIAL RESULTS OF OPERATION OF THE RAILWAY SYSTEMS**

	<i>Argentina</i>	<i>Bolivia</i>	<i>Brazil</i>	<i>Colombia</i>	<i>Chile</i>	<i>Peru</i>	<i>Mexico</i>	<i>Uruguay</i>
<i>Operating coefficients<sup>a</sup></i>								
1945 .....	81.6	...	96.6	69.3	99.2	...	102.0	...
1950 .....	123.8	81.6	136.0	103.2	136.9	104.2	101.9	134.6
1955 .....	127.9	91.2	159.9	110.2	151.3	102.7	123.2	193.1
1960 .....	156.9	143.2 <sup>b</sup>	192.0	112.7	153.6	111.0	116.2	187.9
1961 .....	174.1	...	228.0	112.4	179.0	120.9	128.5	228.3
1962 .....	207.0	...	260.1	126.0	203.2	124.1	133.8	253.4
1968 .....	144.0	110.0	192.0	92.0	143.0	135.0	143.0	233.0
<i>Percentage variation 1960-1968 expressed in real terms</i>								
Operating expenditure .....	-26.0	...	-16.0	+22.0	-15.0	-11.0	+27.0	-9.0
Operating income ..	-20.0	...	-16.0	+49.0	-8.0	-27.0	+3.0	-27.0
Surplus of deficit ..	-38.0	...	-16.0	—	-27.0	+130.0	+174.0	+11.0

SOURCE: As for table 10.

<sup>a</sup> Ratio of operating costs to operating income, multiplied by 100. Subsidies and other income not connected with operations was excluded from operating

income; expenditure on renewals of equipment was not included under operating expenditure.

<sup>b</sup> Data for 1959.

bia achieved a surplus. Contributory factors were rate trends and changes in the proportions of freight and passenger traffic (see table 12). Of particular importance the expenditure side, owing to its large share of the total, was expenditure on the wage bill owing to changes in the number of persons employed and in average real wages. Expenditure for maintenance, fuel and electrical energy generally rose less rapidly than the wage bill.

In the three countries that reduced their operating deficits there were reductions in real terms in freight rates: 15 per cent in Argentina, 12 per cent in Brazil and 25 per cent in Chile. The effect on operating income, however, was to some extent offset, especially in Argentina, where in addition to a real increase of 29 per cent in passenger rates the ratio of freight income to passenger income fell from 2.9:1 in 1960 to 1.7:1 in 1968. In Brazil and Chile, passenger rates fell by 4.2 and 23.8 per cent respectively, and in neither country was there a change in the structure of income.

The reduction of expenditure was made possible by a sharp cutback in the labour force in Argentina and Brazil, accompanied by a relatively small rise in average real wages. In Chile, where the labour force shrank only slightly, real wages fell by 15 per cent.

Colombia's surplus was due to a sharp increase in real passenger rates (68 per cent),

accompanied by stagnation in real terms of freight rates, with the ratio of freight to passenger traffic remaining constant. The relatively smaller increase in expenditure was due *inter alia* to a 32 per cent rise in average wages, with the size of the labour force remaining roughly at its 1960 level.

In the countries where the operating deficit increased, there was a sharp decline—about 30 per cent—in real freight rates, accompanied in Peru and Uruguay by an equal or greater decline in passenger rates (46 per cent). In Mexico, passenger rates declined comparatively less (8 per cent), but total income in respect of freight was almost ten times that for passengers. The labour force rose by 16 per cent between 1960 and 1968, while average wages, at constant prices, rose by 42 per cent.

## 2. Shipping companies<sup>14</sup>

Table 13 gives an over-all picture of Latin America's merchant fleet,<sup>15</sup> with a break-down by State and private shipping companies. It

<sup>14</sup> For recent trends in Latin American maritime transport, particularly the shipping policies adopted, see ECLA, *Economic Survey of Latin America*, 1969, Part Three, chapter III.

<sup>15</sup> In view of the fact that most ships flying the Panamanian flag are not Latin American-owned, the fleet registered in Panama has not been taken into consideration.

**Table 12**  
**LATIN AMERICA: TRAFFIC AND AVERAGE INCOME**  
**IN THE RAILWAY SYSTEMS**

	Year	Commercial traffic		Unit income	
		Freight (millions of ton/km.)	Passengers (millions of pass./km.)	Per ton/km. (thousandths of dollar at 1960 prices) <sup>a</sup>	Per pass./km.
Argentina .....	1950	16,120	13,104	13.7	7.9
	1960	15,158	15,685	13.5	4.5
	1962	10,913	...	12.0	...
	1968	12,778	14,853	11.0	5.8
Bolivia .....	1968	311	248	25.4	7.7
Brazil .....	1950	8,267	10,093	18.5	5.1
	1960	12,820	15,395	8.9	2.4
	1968	12,997	13,173	7.8	2.3
Colombia .....	1960	768	598	20.5	4.7
	1968	1,125	351	20.7	7.9
Chile .....	1950	2,161	1,956	20.0	9.0
	1960	2,025	1,900	28.1	10.1
	1968	2,331	2,071	21.0	7.7
Mexico .....	1960	14,004	4,128	13.1	5.0
	1968	20,654	4,398	9.6	4.6
Peru .....	1960	529	282	32.0	9.5
	1968	567	224	22.0	7.2
Uruguay .....	1960	399	535	21.4	5.9
	1968	415	663	14.9	3.2

SOURCE: As for table 10.

<sup>a</sup> Deflated using consumer price indexes (except for Mexico, where the implicit price deflator of the gross domestic product was used) and converted into dollars at purchasing power parity exchange rates.

shows that Argentina and Brazil, with the largest national fleets, together account for 57 per cent of all Latin American tonnage. Chile, Colombia and Ecuador,<sup>16</sup> Cuba, Mexico and Venezuela form a second group, with 34 per cent of total tonnage, most of the remaining 9 per cent being taken up by Peru and Uruguay (8 per cent). At the same time, it should be borne in mind that Latin American national-flag ships carry only a small percentage of each country's total maritime freight; table 14 illustrates this point by indicating the freights earned by national and by foreign ships.

Taking only ships of 1,000 gross registered tons (grt) or over, the thirty-three State-owned fleets account for nearly 60 per cent of Latin America's over-all tonnage, while the 124 privately-owned fleets represent only 40 per cent. Moreover, except in Uruguay and Ven-

zuela, the average age of the State-owned fleets is lower in every country.

Of the total State-owned fleets alone, 63.5 per cent is in Brazil and Argentina, followed by Cuba and Mexico with 20.6 per cent. Further down the scale come Chile, Colombia and Ecuador, and Venezuela, with much lower shares and a predominantly privately owned fleet.

Table 15 lists Latin America's thirty biggest shipping companies. Here again, it can be seen that the bulk of the total fleet is State-owned since the seventeen private shipping companies mentioned account for only one third of the total tonnage of the thirty enterprises.

From 1964 to 1969, the total gross registered tonnage of Latin America's merchant fleet rose by 10 per cent, despite a reduction in the number of ships in operation (see table 17). Most of this increase can be ascribed to private shipowners, since the public sector's share dropped from 61.9 per cent to 58.5 per cent. The same general trend is apparent in all the countries, except for Chile and Colombia/

<sup>16</sup> Owing to the size of the Grancolombiana merchant fleet, which is jointly owned by Colombia and Ecuador, these two countries are usually taken together.

Table 13

**LATIN AMERICA: SHARE OF STATE-OWNED SHIPPING COMPANIES  
IN THE TOTAL MERCHANT FLEET AT 1 DECEMBER 1969<sup>a</sup>**

Shipping company	Number of units	Average age (years)	Gross registered tonnage	
			Absolute figures	Percentage of total national fleet
<i>Argentina</i>				
Empresa Líneas Marítimas Argentinas	45	17.8	325,013	31.1
Yacimientos Petrolíferos Fiscales ...	25	18.4	210,177	20.1
Ministerio de Defensa Nacional ...	11	21.4	41,388	4.0
Flota Fluvial del Estado Argentino ..	13	9.0	34,671	3.3
Empresa Ferrocarriles del Estado Argentino .....	6	37.4	12,459	1.2
Yacimientos Carboníferos Fiscales ...	2	25.0	6,691	0.7
Total State-owned .....	102	18.2	630,399	60.4
Total privately-owned .....	81	21.3	413,501	39.6
Over-all total .....	183	19.5	1,043,900	100.0
<i>Brazil</i>				
Fronape (PETROBAS) .....	40	9.9	420,142	34.3
Lloyd Brasileiro .....	69	13.6	373,524	30.6
Ministerio de Marinha .....	6	14.8	22,068	1.8
Companhia Siderurgica Nacional ...	2	14.0	16,453	1.3
Empresa de Navegação Amazonica ..	7	12.4	9,238	0.8
Total State-owned .....	124	11.8	841,425	68.9
Total privately-owned .....	92	14.7	380,552	31.1
Over-all total .....	216	12.7	1,221,977	100.0
<i>Chile</i>				
Ministerio de Defensa Nacional .....	5	10.0	31,720	12.1
Empresa Marítima del Estado .....	9	12.1	21,486	8.3
Total State-owned .....	14	10.9	53,206	20.5
Total privately-owned .....	28	12.9	205,985	79.5
Over-all total .....	42	12.5	259,191	100.0
<i>Colombia/Ecuador</i>				
Ministerio de Defensa Nacional de Colombia .....	5	8.7	46,588	19.4
Flota Bananera Ecuatoriana .....	2	1.0	13,250	5.5
Concesión de Salinas (Banco de la República de Colombia) .....	2	1.5	3,956	1.7
Navenal .....	2	16.8	2,989	1.3
Total State-owned .....	11	7.1	66,783	27.9
Total privately-owned <sup>b</sup> .....	30	8.9	172,332	72.1
Over-all total .....	41	8.4	239,115	100.0
<i>Cuba</i>				
Empresa Consolidada de Navegación Mambisa .....	39	9.8	229,380	94.0
Flota Cubana de Pesca .....	7	3.4	9,094	3.7
Empresa Consolidada del Petróleo ..	2	11.7	4,579	1.9
Empresa Consolidada del Cemento ..	1	40.0	1,039	0.4
Over-all total .....	49	9.7	244,092	100.0
<i>Dominican Republic</i>				
Flota Mercante Dominicana .....	2	10.9	6,463	67.5
Total privately-owned .....	2	28.4	3,117	32.5
Over-all total .....	4	23.4	9,580	100.0

Table 13 (continued)

Shipping company	Number of units	Average age (years)	Gross registered tonnage	
			Absolute figures	Percentage of total national fleet
<i>Guatemala</i>				
Flota Mercante Gran Centroamericana	2	9.5	3,629	100.0
<i>Mexico</i>				
Pemex	21	5.9	230,754	81.6
Caminos y Puentes Federales	1	5.0	2,531	0.9
Total State-owned	22	5.9	233,285	82.5
Total privately-owned	14	14.1	49,475	17.5
Over-all total	36	7.4	282,760	100.0
<i>Nicaragua</i>				
Mamenic	5	16.1	11,116	73.0
Total privately-owned	1	36.0	4,105	27.0
Over-all total	6	21.4	15,221	100.0
<i>Paraguay</i>				
Flota Mercante del Estado	14	7.5	15,713	100.0
<i>Peru</i>				
Compañía Peruana de Vapores	7	8.1	57,304	30.7
Ministerio de Marina	9	14.5	51,089	27.3
Total State-owned	16	11.1	108,393	58.0
Total privately-owned	12	19.7	78,498	42.0
Over-all total	28	14.7	186,891	100.0
<i>Uruguay</i>				
Ancap	3	23.0	22,719	18.0
Ministerio de Defensa Nacional	1	7.0	18,584	14.7
Administración Nacional de Puertos	3	31.6	15,878	12.6
Total State-owned	7	20.1	57,181	45.3
Total privately-owned	11	17.9	69,009	54.7
Over-all total	18	18.9	126,190	100.0
<i>Venezuela</i>				
C.A. Venezolana de Navegación	12	13.7	45,726	14.7
Total privately-owned	23	11.9	264,703	85.3
Over-all total	35	12.1	310,429	100.0
<i>Latin America</i>				
Total State-owned (33 shipping companies)	380	12.8	2,317,411	58.5
Total privately owned (124 shipping companies)	294	15.8	1,641,277	41.5
Over-all total	674	13.9	3,958,688	100.0

SOURCE: Instituto de Estudios de la Marina Mercante Iberoamericana, *La Marina Mercante Iberoamericana*, Buenos Aires, 1969.

<sup>a</sup> Only self-propelled ships of 1,000 gross registered tons or over.

<sup>b</sup> The Ecuadorian Government has a minority holding in the F.M. Grancolombiana, which is a private enterprise. It owns 24 ships with a total registered tonnage of 158,915, i.e., 66.5 per cent of the total combined tonnage of Colombia and Ecuador.

**Table 14**  
**LATIN AMERICA: MARITIME FREIGHTS IN FOREIGN TRADE, 1967**

	<i>Total freight on imports</i> (millions of dollars)	<i>Total earned by national flag ships</i>	<i>Percentage</i>	<i>Total freight on exports</i> (millions of dollars)	<i>Total earned by national flag ships</i>	<i>Percentage</i>	<i>Over-all total freights</i>	<i>Total earned by national flag ships</i> (millions of dollars)	<i>Total earned by foreign ships</i>	<i>Percentage earned by national flag ships</i>
Argentina .....	99.8	24.9	25	199.8	18.0	99	299.6	42.9	256.7	14
Bolivia .....	19.3	—	—	20.0	—	—	39.3	—	39.3	—
Brazil .....	219.7	93.3	42	207.0	33.6	16	426.7	126.9	299.8	30
Colombia .....	42.0	11.4	27	101.0	5.2	5	143.0	16.6	126.4	12
Costa Rica .....	17.2	1.4	8	35.0	0.8	2	52.2	2.2	50.0	4
Chile .....	68.5	17.0	25	93.0	12.1	13	161.5	29.1	132.4	18
Ecuador .....	17.3	4.2	24	52.7	3.0	6	70.0	7.2	62.8	10
El Salvador .....	19.0	—	—	18.0	—	—	37.0	—	37.0	—
Guatemala .....	19.7	—	—	18.0	0.1	1	37.7	0.1	37.6	—
Haiti .....	3.8	—	—	3.5	—	—	7.3	—	7.3	—
Honduras .....	14.3	0.6	4	56.0	0.2	—	70.3	0.8	69.5	1
Mexico .....	53.0	12.0	23	150.0	8.0	5	203.0	20.0	183.0	10
Nicaragua .....	27.4	4.8	18	15.5	2.1	14	42.9	6.9	36.0	16
Panama .....	21.2	—	—	50.5	—	—	71.7	—	71.7	—
Paraguay .....	9.7	3.0	31	9.9	1.8	18	19.6	4.8	14.8	24
Peru .....	69.0	13.0	19	157.0	5.0	3	226.0	18.0	208.0	8
Dominican Republic ...	16.5	—	—	22.0	3.8	17	38.5	3.8	34.7	10
Uruguay .....	26.0	9.7	37	11.0	1.7	15	37.0	11.4	25.6	31
Venezuela .....	82.0	19.2	23	700.0	41.8	6	782.0	61.0	721.0	8
<i>Total</i> .....	<i>845.4</i>	<i>214.5</i>	<i>25</i>	<i>1,919.9</i>	<i>137.2</i>	<i>7</i>	<i>2,765.3</i>	<i>351.7</i>	<i>2,413.6</i>	<i>13</i>
<i>Total for ALALC countries (excluding Bolivia)</i> .....	<i>687.0</i>	<i>207.7</i>	<i>30</i>	<i>1,681.4</i>	<i>130.2</i>	<i>8</i>	<i>2,368.4</i>	<i>337.9</i>	<i>2,030.5</i>	<i>14</i>

SOURCE: For ALALC countries, excluding Bolivia, OAS/ALALC Transport Programme; for other countries, International Monetary Fund and ECLA estimates.

Table 15

LATIN AMERICA: THE THIRTY BIGGEST SHIPPING COMPANIES IN ORDER OF GROSS REGISTERED TONNAGE<sup>a</sup> AT 1 JANUARY 1969

<i>Shipping company and country</i>	<i>State-owned or privately owned</i>	<i>Units</i>	<i>Gross registered tonnage</i>	<i>Average age (years)</i>
FRONAPE (Brazil) .....	State	40	420,142	9.9
Lloyd Brasileiro (Brazil) .....	State	69	373,524	13.6
ELMA (Argentina) .....	State	45	325,013	17.8
PEMEX (Mexico) .....	State	21	230,574	5.9
Empresa Consolidada de Navegación MAMBISA (Cuba) .....	State	39	229,380	9.8
YPF (Argentina) .....	State	25	210,177	18.4
Flota Mercante Gran Colombiana (Colombia/Ecuador) <sup>b</sup> .....	Private	24	158,915	8.3
Creole Petroleum (Venezuela) .....	Private	6	117,254	10.5
Compañía Shell de Venezuela (Venezuela) .....	Private	6	104,216	11.4
Compañía Sudamericana de Vapores (Chile) .....	Private	10	95,364	7.7
PETROMAR (Argentina) .....	Private	10	76,009	18.7
Navegação Mercantile S.A. Navem y otros (Brazil) .....	Private	5	65,400	1.2
Estrella Marítima (Argentina) .....	Private	9	64,929	17.7
Compañía Peruana de Vapores (Peru) .....	State	7	57,304	8.1
Ministerio de Marina (Peru) .....	State	9	51,089	14.5
SONAP (Chile) .....	Private	3	50,716	15.4
Ministerio de Defensa Nacional (Colombia) .....	State	5	46,588	8.7
CAVN (Venezuela) .....	State	12	45,726	13.7
Transportadora Marítima Mexicana (Mexico) .....	Private	12	44,155	12.9
Navegação NETUMAR (Brazil) .....	Private	9	43,113	8.3
Ministerio de Defensa Nacional (Argentina) .....	State	11	41,388	21.4
LIBRA (Brazil) .....	Private	14	38,323	13.0
La Naviera (Argentina) .....	Private	8	37,642	27.4
GOTAAS LARSEN (Argentina) .....	Private	3	37,508	21.0
ASTRAMAR (Argentina) .....	Private	3	35,845	16.4
EFFDEA (Argentina) .....	State	13	34,671	9.0
TRANSMARITIMA del Plata (Argentina) .....	Private	2	31,967	22.3
Ministerio de Marina (Chile) .....	State	5	31,720	10.0
Frota Oceanica Brasileira (Brazil) .....	Private	2	30,238	1.5
ESSO Uruguay (Uruguay) .....	Private	1	29,139	11.0

## SUMMARY

	<i>Units</i>	<i>Gross registered tonnage</i>	<i>Percentage of total g.r.t. of the thirty biggest shipowners</i>
State shipping companies (13) .....	301	2,097,476	66.4
Private shipping companies (17) .....	127	1,060,733	33.6
<i>Total</i> .....	<i>428</i>	<i>3,158,209</i>	<i>100.0</i>

SOURCE: As for table 13.

<sup>a</sup> Only self-propelled ships of 1,000 g.r.t. or over.

<sup>b</sup> The Ecuadorian Government has a minority holding in the F.M. Grancolombiana.

Ecuador—two of the fleets with the largest proportion of privately owned ships. There has however been little enough change and the relative proportions of public and private ownership have not altered greatly, except in Uruguay, where the share of the State-owned fleet declined from 65 to 45 per cent of the total during the period under consideration; on the other hand, the share of government-owned shipping increased substantially in Chile (from 15 to 20 per cent) and in Colombia and Ecuador (from 11 to 28 per cent).

The fastest-growing fleet was Cuba's, which is entirely State-owned; from the eighth largest Latin American merchant fleet, it moved up to sixth place, and from fourth to third place in the State-owned fleets.

The major role played by the State in Latin America's maritime transport is further illustrated by the fact that orders for new government-owned ships represented 60 per cent of the total tonnage under construction or on order at 1 January 1969 (see table 16). In this connexion, it is worth noting that the Brazilian Government has continued to enlarge its merchant fleet, which accounted for 65 per cent of the total tonnage ordered by Brazil. As regards the ratio of tonnage under construction or on order to the existing tonnage of State-owned ships, the most striking cases are Chile and Peru, whose rate of renewal was 124 per cent and 104 per cent respectively.

### 3. Airlines

#### (a) *Relative importance of State and private airlines*

In nearly all the Latin American countries, the public sector shares air transport with the private sector. Of the fourteen largest air transport companies in the region—there are also a multitude of small companies, generally privately owned—half are privately run and carry close to 55 per cent of the passenger traffic and about 60 per cent of the freight. Of the largest State-run enterprises, mention should be made of Aerolíneas Argentinas, which has a volume of traffic of 1.6 million passengers/kms and 44 million ton/kms of freight, and Aeronaves de México, with 1.4 and nearly 18 million passenger/kms and ton/kms, respectively. The volume of passenger traffic on VIASA and LAN is about 670,000 passenger/km; the volume of freight, however, exceeds that of the Mexican airline (see table 18).

As regards the operational features of the largest airlines in the region, as a rule there are no differences between the public and private airlines except, of course, in the case of domestic flights and stopping points which State airlines sometimes maintain, although they run at a loss, for social reasons or to draw the country together. Both types of airline have domestic and international flights. Aerolíneas Argentinas (State-run) and VARIC (privately owned) run mostly international flights. In other cases, State enterprises such as Cubana de Aviación, LAN-Chile and Aeronaves de México, and AVIANCA, which is privately owned, have about as many foreign as domestic flights.

The secondary airlines—whether private or State-owned—mostly operate domestic flights. This is the case of Cruzeiro do Sul and VASP in Brazil, LADECO in Chile, Aeropostal Venezolana, etc.

#### (b) *Financial results of operation*

The major airlines of the region—both public and private—are not usually very profitable concerns, for several reasons. First, the airlines that run domestic services as a rule—though not always—have to keep their fares relatively low, either to attract business or to keep them in line with domestic prices. The rates on their international flights are normally fixed by international agreements and with these earnings they have to make good any deficit on domestic services, in addition to paying their current operating costs. This means that if the airline is to operate at a profit, costs must be reduced to a minimum.

Of a total of thirteen airlines considered, four run at a loss: Aerolíneas Argentinas, Cruzeiro do Sul, APSA and LAN; the losses of the last two are very heavy, and LAN, in particular, has a deficit of 40 per cent on its sales figures. Another five enterprises have made somewhat meagre profits of between 2.6 and 4.1 per cent of sales; VARIG, AVIANCA, VIASA, Aeropostal Venezolana and LACSA of Costa Rica; and only four airlines made what may be called a satisfactory profit, equivalent to about 8 per cent of sales: Ecuatoriana de Aviación, Aeronaves de México (State-owned), Aerovías Venezolanas and SAHSA of Honduras.

Income from sales per unit transported appears to have been a factor only in the large losses of LAN, which has the lowest income per unit of the airlines considered, and in the

Table

## LATIN AMERICA: STATE-OWNED AND PRIVATELY

Country	At 1 January 1964								
	State-owned			Privately owned		Total			
	Units	G.r.t.	Ranking	Units	G.r.t.	Units	G.r.t.	Ranking	
Argentina	138	781,951	2nd	78	418,110	216	1,200,061	1st	
Brazil	145	861,477	1st	91	250,451	236	1,111,928	2nd	
Chile	13	41,887	8th	39	238,941	52	280,828	3rd	
Colombia/Ecuador	3	15,435	9th	32	118,547	35	133,982	7th	
Cuba	32	126,755	4th	—	—	32	126,755	8th	
Dominican Republic	4	11,886	11th	1	1,167	5	13,053	11th	
Guatemala	2	3,629	13th	—	—	2	3,629	13th	
Mexico	18	149,295	3rd	11	45,426	29	194,721	5th	
Nicaragua	4	9,793	12th	—	—	4	9,793	12th	
Paraguay	12	13,365	10th	—	—	12	13,365	10th	
Peru	21	111,641	5th	9	32,003	30	143,644	6th	
Uruguay	8	62,824	6th	8	33,490	16	96,314	9th	
Venezuela	11	42,075	7th	23	234,824	34	276,899	4th	
Total	411	2,232,013		292	1,372,959	703	3,604,972		

SOURCE: As for table 13.

relatively high profits of Aerovías Venezolanas and the Honduran airline, SAHSA. The level of returns on the operation of the other airlines must, therefore, be put down to the amount of running costs; this is obvious in the case of the Venezuelan airlines, which have a high income per unit transported but also have high running costs (see tables 18, 19 and 20).

#### 4. Petroleum enterprises

##### (a) Relative importance of public and private enterprises

Public enterprises handle most of the oil production and refining activities in the Latin American oil countries—with the single exception of Venezuela, which is the region's major exporter (see table 21). Their legal form differs from country to country, they have been in operation for different periods, and their degree of importance also varies. In general, however, they are profit-making, finance a large proportion of their capital expenditure, and account for a significant percentage of total investment in each country. The manpower they employ depends on their scale of operation, fluctuating around 34,000 persons in Argentina and Brazil and 4,000 in Bolivia, Chile and Colombia (see table 22).

In Argentina, the crude petroleum produced by the State Petroleum Corporation (Yacimien-

tos Petrolíferos Fiscales—YPF) in the past decade amounted to about 70 per cent of the country's total output. In addition to YPF, several foreign companies and other domestic enterprises have a share in production through contracts with the State enterprise. If their output were added to YPF's, the proportion would come close to 100 per cent. In any case, the present contract system is different from the former system of concessions, which declined in importance from 5.5 per cent in 1960 to 1.1 per cent in 1969. YPF produced 14.9 million cubic metres of crude in 1969, the main contractors being Pan American and Argentina Cities Service, which contributed 11.3 and 11.1 per cent respectively. The most important concessionaire, Shell CAPSA, produced 124,000 cubic metres the same year. Notwithstanding the high level of self-sufficiency attained, however, imports of crude petroleum, petroleum products, lubricants and liquid gas totalled over 98 million dollars in 1969. Table 23 shows YPF's share in the market for petroleum products.

In Bolivia, the share of the State petroleum corporation (Yacimientos Petrolíferos Fiscales Bolivianos—YPFB) in the petroleum sector dwindled steadily over the past decade up to the time when the Bolivian Gulf Oil Company was expropriated, in October 1969. Until 1955, YPFB was the only enterprise operating in

OWNED MERCHANT FLEET, 1964 AND 1969<sup>a</sup>

At 1 January 1969									Gross registered tonnages percentage variation between 1.1.64 and 1.1.69		
State owned			Privately owned			Total			State-owned	Privately owned	Total
Units	G.r.t.	Ranking	Units	G.r.t.	Units	G.r.t.	Ranking				
102	630,399	2nd	81	403,501	183	1,043,900	2nd	-19.4	-1.1	-13.1	
124	841,425	1st	92	380,552	216	1,221,977	1st	-2.3	51.9	9.9	
14	53,206	8th	28	205,985	42	259,191	5th	27.0	-13.8	-7.7	
11	66,783	6th	30	172,332	41	239,115	7th	332.7	45.4	78.5	
49	244,092	3rd	—	—	49	244,092	6th	92.6	—	92.6	
2	6,463	12th	2	3,117	4	9,580	12th	-45.6	167.1	-26.6	
2	3,629	13th	—	—	2	3,629	13th	—	—	—	
22	233,285	4th	14	49,475	36	282,760	4th	56.3	8.9	45.2	
5	11,116	11th	1	4,105	6	15,221	11th	13.5	...	55.4	
14	15,713	10th	—	—	14	15,713	10th	17.6	—	17.6	
16	108,393	5th	12	78,498	28	186,891	8th	-2.9	145.3	30.1	
7	57,181	7th	11	69,009	18	126,190	9th	-9.0	106.1	31.0	
12	45,726	9th	23	264,703	35	310,429	3rd	8.7	12.7	12.1	
380	2,317,411		294	1,641,277	674	3,958,688		3.8	19.5	9.8	

<sup>a</sup> Only self-propelled ships of 1,000 g.r.t. or over.

this sector, as all former concessions had been cancelled; but from 1955 onwards other enterprises were established, including the Bolivian Gulf Oil Company. In 1963 YPF produced twenty-seven times more crude petroleum than Gulf Oil, but in 1968 and 1969, while the latter produced 1,886,000 and 1,385,000 cubic metres respectively, YPF's output was only 497,000 and 661,000. Moreover, in 1969, each enterprise owned half of all the assets of Bolivia's petroleum industry, although Gulf Oil had no refinery. Further, the State enterprise had rights over 27 per cent of the known crude and condensed petroleum reserves compared with Gulf Oil's 73 per cent, and its share of the total gas reserves was only 10 per cent. The export position of the State enterprise also deteriorated, since the extraordinary increase from 300,000 cubic metres in 1963 to 1.7 million cubic metres in 1968 is mainly attributable to Gulf Oil (see table 24). The situation changed completely in October 1969 with the nationalization of Gulf Oil; all its assets were transferred to YPF, which thus became Bolivia's sole producer.

In Brazil, the State enterprise (PETROBRAS) has a monopoly of petroleum production and refining, although it respects the refining concessions granted before 1953. The main characteristics of the sector today are its heavy petroleum imports and its virtual self-sufficiency

in refined products. For instance, domestic production of petroleum products supplied 91 per cent of domestic demand in 1968, and 98 per cent in 1969; but in regard to production, in the last few years the continued increase in the proportion of domestic petroleum refined locally has come to a halt. In 1967, approximately 52 per cent of the crude oil refined in Brazil came from PETROBRAS, but the proportion dropped to 45 and 42 per cent in 1967 and 1968, respectively. This was because PETROBRAS's production rose by 17 per cent (to a volume of 10.2 million cubic metres) during that period, while total petroleum consumption increased by 32 per cent (in terms of value) and the volume absorbed by local refineries by 49 per cent. There were thus two parallel developments: an increase in consumption and an increase in the share of Brazilian refineries in the total supply of petroleum products. In recent years, PETROBRAS has stepped up its direct share in the distribution of petroleum products, which rose from 14.3 per cent of total supply in 1968 to 17 per cent in 1969 through the operation of 376 distribution services.<sup>17</sup>

In Chile, the State enterprise (ENAP) has a complete monopoly of production and refin-

<sup>17</sup> See PETROBRAS, *Relatorio de actividades*, 1969.

**Table 17**  
**LATIN AMERICA: SHIPS UNDER CONSTRUCTION OR ON ORDER BY STATE AND PRIVATE SHIPPING COMPANIES**  
**AT 1 JANUARY 1969<sup>a</sup>**

	State shipping companies			Private shipping companies			Total		Rate of renewal <sup>b</sup>		
	Units	G.r.t.	Percentage of total g.r.t.	Units	G.r.t.	Percentage of total g.r.t.	Units	G.r.t.	State shipping companies	Private shipping companies	Total
Argentina .....	6	35,300	68.8	4	16,000	31.2	10	51,300	5.6	4.0	4.9
Brazil .....	25	573,200	65.0	44	308,844	35.0	69	882,044	68.1	81.2	72.2
Chile .....	6	66,000	100.0	—	—	—	6	66,000	124.0	—	25.5
Colombia/Ecuador .....	—	—	—	2	21,000	100.0	2	21,000	—	12.2	8.8
Cuba .....	3	36,000	100.0	—	—	—	3	36,000	14.7	—	14.7
Dominican Republic .....	—	—	—	—	—	—	—	—	—	—	—
Guatemala .....	—	—	—	—	—	—	—	—	—	—	—
Mexico .....	2	16,750	22.2	5	58,700	77.8	7	75,450	7.2	118.6	26.7
Nicaragua .....	—	—	—	—	—	—	—	—	—	—	—
Paraguay .....	—	—	—	—	—	—	—	—	—	—	—
Peru .....	12	112,616	100.0	—	—	—	12	112,616	103.9	—	60.0
Uruguay .....	1	20,000	100.0	—	—	—	1	20,000	35.0	—	15.8
Venezuela .....	—	—	—	6	164,280	100.0	6	164,280	—	62.1	52.9
<i>Total</i> .....	<i>55</i>	<i>859,866</i>	<i>60.2</i>	<i>61</i>	<i>568,824</i>	<i>39.8</i>	<i>116</i>	<i>1,428,690</i>	<i>37.1</i>	<i>34.7</i>	<i>36.1</i>

SOURCE: As for table 13.

<sup>a</sup> Only self-propelled ships of 1,000 g.r.t. or over.

<sup>b</sup> Rate of renewal =  $\frac{\text{G.r.t. under construction or ordered} \times 100}{\text{Existing g.r.t. in operation}}$

**Table 18**  
**LATIN AMERICA: TRAFFIC OF SELECTED AIRLINES, BY COUNTRY,**  
**1969 SCHEDULED SERVICES, DOMESTIC AND INTERNATIONAL<sup>a</sup>**

Country and airline	Ownership	Kilometres flown	Traffic			Weight load factor (percent- age)
			Passenger (Passenger/ km) (thousands)	Freight (ton/km)	Total (ton/km)	
<i>Argentina</i>		42,500	1,961,510	60,780	248,730	58.0
Aerolíneas Argentinas ..	State	31,786	1,614,966	44,167	201,343	52.8
<i>Brazil</i>		92,400	3,913,510	135,700	466,710	56.0
Varig .....	Private	48,137	2,503,538	123,945	346,651	58.1
Cruzeiro Do Sul .....	Private	18,335	682,015	7,335	62,404	54.6
Viaçao Aérea Sao Paulo (VASP) .....	State	17,273	550,544	5,607	47,627	53.1
<i>Colombia</i>		46,480	1,775,490	69,810	231,830	59.0
Avianca .....	Private	31,162	1,407,712	52,354	185,438	59.6
<i>Costa Rica</i>		4,810	124,440	8,850	20,040	69.0
Lacsa <sup>c</sup> .....	State	...	86,200 <sup>b</sup>	8,148	15,897	68.9
<i>Cuba</i>		6,600	345,090	7,460	37,430	84.0
Cubana de Aviación ....	State	7,288	445,613	7,999	47,560	87.4
<i>Chile</i>		19,060	655,730	62,750	133,990	49.0
Línea Aérea Nacional (LAN) .....	State	14,935	667,853	27,491	89,080	58.3
<i>Ecuador</i>		9,110	216,624 <sup>d</sup>	4,950	25,070	57.0
Ecuatoriana de Aviación <sup>c</sup>	Private	7,930 <sup>d</sup>	189,100 <sup>d</sup>	3,585	21,150	61.4
<i>Mexico</i>		50,590	2,884,240	40,760	288,230	49.0
Aeronaves de México ..	State	25,459	1,400,100	17,657	104,921	47.4
Mexicana de Aviación ..	Private	19,395	1,164,817	13,077	113,749	51.8
<i>Peru</i>		18,430	694,480	17,210	79,190	51.0
Aerolíneas Peruanas (APSA) .....	Private	10,828	647,632	10,119	69,741	50.7
<i>Trinidad and Tobago</i>		8,990	418,450	8,240	43,920	34.0
British West Indies Air- ways .....	Private	8,681	416,611	8,303	44,161	33.5
<i>Venezuela</i>		28,870	995,070	39,330	131,040	42.0
VIASA—Venezolana In- ternacional .....	State	13,450	683,300	40,323	106,810	41.7
Línea Aeropostal Venezo- lana .....	State	...	137,040 <sup>d</sup>	1,951	14,394	45.2
Aerovías Venezolanas <sup>c</sup> ..	Private	...	161,350 <sup>d</sup>	3,222	17,872	43.7
<i>Latin America<sup>e</sup></i> .....		369,350	15,202,614	502,180	1,863,130	—

SOURCES: International Civil Aviation Organization (ICAO), *Development of Civil Air Transport. Traffic Statistics*, February 1970; International Air Transport Association (IATA), *World Air Transport Statistics*, 1969.

<sup>a</sup> In some cases, the figures for individual airlines are higher than those for the country concerned, owing to discrepancies between the two sources used.

<sup>b</sup> In addition to passengers and freight, includes baggage and mail.

<sup>c</sup> Figures for 1968.

<sup>d</sup> Estimates.

<sup>e</sup> Covers the twenty-three countries of the region.

Table

## LATIN AMERICA: OPERATING INCOME AND EXPENDITURE

Airline	Ownership	Assets on aircraft, equipment and installations	Scheduled services	Operating income	Operating expenditure
(thousands of dollars)					
Aerolíneas Argentinas	State	...	63,554	70,066	72,171
Cruzeiro do Sul (Brazil)	Private	39,220	23,372	22,777	23,235
VARIG (Brazil)	Private	97,157	80,129	86,501	83,934
LAN (Chile)	State	40,247	15,866	18,251	24,905
AVIANCA (Colombia)	Private	58,596	53,854	56,844	54,654
LACSA (Costa Rica)	Private	5,109	5,373	5,638	5,449
Ecuatoriana de Aviación	Private	3,241	6,685	7,640	7,113
SAHSA (Honduras)	Private	1,374	3,211	3,611	3,329
Aerolíneas Peruanas (APSA)	Private	25,808	15,862	16,377	18,606
Aeronaes de Mexico	State	...	45,946	48,921	45,520
VIASA (Venezuela)	State	14,015	33,106	38,686	37,822
Aerovías Venezolanas	Private	11,105	11,770	18,138	17,202
Línea Aeropostal Venezolana	State	11,556	10,393	12,376	12,083

SOURCE: International Civil Aviation Organization (ICAO), *Digest of Statistics No. 145; Financial*

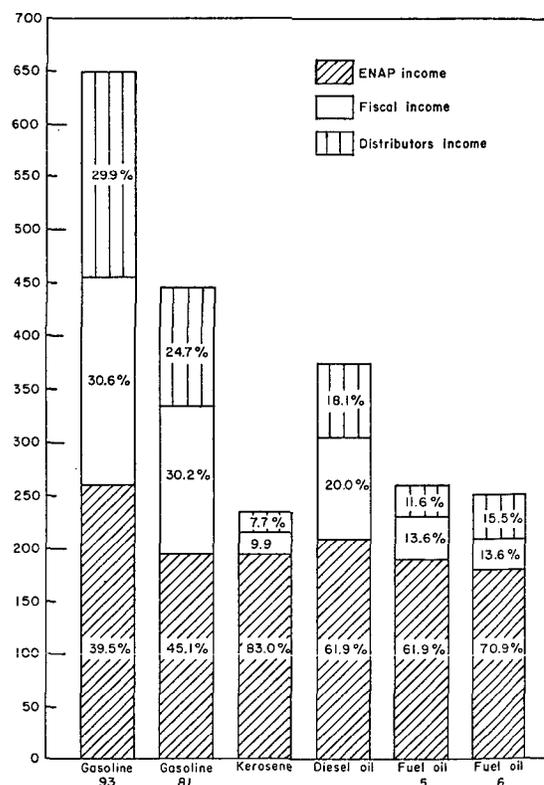
ing. In 1968 it produced 55 per cent of the 4.3 million cubic metres of crude refined in the country, and it has become virtually self-sufficient in petroleum refining (see table 25). In contrast with the policy of other similar enterprises, however, ENAP takes no direct part in the distribution of petroleum products, which is in the hands of national and foreign private companies. Figure I shows how the price of petroleum products is distributed among the State enterprise, the Treasury and the distributors.

In Mexico, PEMEX has a monopoly of petroleum production, refining and distribution. Some 25.5 million cubic metres of crude petroleum were produced in 1968 for the local refineries.

(b) *Financial results of operation*

Table 26 presents some of the financial results of the operation of State petroleum enterprises, which show a high operating surplus in relation to sales and, in some cases, capital. The data were taken from the balance sheets of the enterprises, but the balance sheets are presented in different ways, which somewhat limits their comparability. In any case, some significant indicators may be drawn from them for evaluating performance.

These enterprises account for a high proportion of gross fixed capital investment in their respective countries, ranging from 8.2



Chile: price components of petroleum products, 1968

SOURCE: Ministry of Mining, *Legislación y Estadística del Petróleo y Derivados, 1968*

## AND FINANCIAL RESULTS FOR SELECTED AIRLINES, 1968

Operating result	Results for the financial year	Operating result on relation to			Sales	Operating expenditure	Operating result
		Aircraft, equipment and installations	Scheduled services	Operating expenditure			
(thousands of dollars)			(percentages)			(dollar cents per ton/km)	
-2,105	-6,877	...	-3.3	-2.9	31.6	35.8	-1.0
-458	224	-1.2	-2.0	-2.0	39.9	39.7	-0.8
2,567	2,134	2.6	3.2	3.1	28.3	29.4	0.9
-6,654	-2,608	-16.5	-41.9	-26.7	23.0	33.9	-9.1
2,190	2,658	3.7	4.1	4.0	32.2	32.4	1.3
189	158	3.7	3.5	3.5	33.8	32.6	1.2
528	65	16.3	7.9	7.4	31.6	33.6	2.5
282	254	20.5	8.8	8.5	54.6	49.2	4.2
-2,229	1,203	-8.6	-14.1	-12.0	31.4	36.8	-4.4
3,401	3,037	...	7.4	7.5	38.2	37.9	2.8
864	1,971	6.2	2.6	2.3	44.9	51.3	1.2
936	2,280	8.4	8.0	5.4	65.9	96.3	5.3
293	293	2.5	2.8	2.4	72.2	83.9	2.1

Data, 1968.

down to 3.8 per cent in Mexico, Argentina and Brazil. They also have a large share in total public investment: as much as 22 per cent in Mexico and 15 per cent in Brazil (see table 27).

As a general rule, these enterprises are so profitable that they can finance all or nearly all of their gross capital fixed investment with their own resources. Table 28 shows the percentage of gross fixed investment and of capital expenditure which is financed in this way.

### 5. Electric power enterprises

#### (a) Importance in sector

Since electric energy must be generated and distributed to satisfy the community's needs, the State not only controls production and regulates electricity rates but in many cases owns the electric power enterprises. In most Latin American countries, moreover, there is an evident trend towards nationalizing the sector, since efforts to expand installed capacity have been channelled primarily through State enterprises. In Argentina, for example, while public utility generation increased by about 70 per cent from 1960 to 1968, State-owned enterprises doubled their output; in Chile the increases were 60 and 86 per cent, respectively; in Mexico, with the nationalization of electric power, the State enterprise was responsible for the whole increment; in Brazil, the subsidiary enterprises of ELETROBRAS

and public and semi-public enterprises (with a minority share of the capital in the hands of ELETROBRAS) are at present meeting over 60 per cent of public demand.

The existence of both public and private electric power enterprises—a system which is not usually encountered in other sectors—is significant in electric power, since, far from competing, they often complement one another's production through interconnected distribution systems, and not infrequently a private company will sell the energy generated by the public enterprise, or vice versa. In some cases, moreover, the installation of a new plant is jointly planned with the object of ensuring complementary investment. Thus large private companies continue to operate, many of them maintaining a regular programme for expanding their generating capacity.

Mexico's Comisión Federal de Electricidad is an example of a large-scale State enterprise which is solely responsible for electricity supply. It was established in 1937 as a decentralized public agency with its own net worth. Since 1960, with the nationalization of the electric power industry, it has generated practically all the electric energy for public consumption and is at present the largest enterprise of its kind in the region. In Paraguay, Uruguay, the Dominican Republic and, to all intents and purposes, El Salvador, State-owned electric power enterprises are also the sole

**Table 20**  
**LATIN AMERICA: PERCENTAGE DISTRIBUTION OF OPERATING EXPENDITURE**  
**FOR SELECTED AIRLINES, 1968**

Airline	Flight operations		Maintenance and overhaul	Depreciation and amortization	Airport taxes and expenses	Passenger services	Sales and promotion	General and administrative expenses	Other operating expenses
	Wages, salaries and expenses of crews	Total <sup>a</sup>							
Cruzeiro do Sul (Brazil) ...	7.6	34.9	12.8	5.1	14.2	8.5	19.8	4.6	0.1
VARIG (Brazil) .....	9.2	24.8	12.2	8.3	6.7	9.1	26.4	4.7	7.8
LAN (Chile) .....	11.0	31.5	17.9	9.9	10.5	8.1	9.5	12.2	0.4
AVIANCA (Colombia) ....	7.3	21.2	12.0	11.1	17.1	6.5	21.1	11.0	—
Sociedad de Aeronavegación de Medellín (Colombia) ..	10.6	30.8	28.2	3.7	11.8	3.5	17.4	4.6	—
LACSA (Costa Rica) .....	12.2	24.8	17.9	10.0	8.7	6.1	21.6	10.9	—
Ecuatoriana de Aviación ....	7.1	28.3	11.7	7.1	12.6	5.8	29.5	4.1	0.9
SAHSA (Honduras) .....	8.6	33.8	5.6	12.0	20.8	3.5	<sup>b</sup>	8.1	16.2
TAN (Honduras) .....	4.8	30.7	15.9	6.5	17.6	5.5	7.8	16.0	—
Aerolíneas Peruanas .....	5.8	25.3	12.7	11.3	11.9	3.8	27.3	6.9	0.8
Aerovías Venezolanas .....	7.7	20.7	25.7	17.8	3.7	2.9	22.4	6.8	—
Línea Aérea Postal Venezolana	8.6	23.0	22.8	8.3	17.7	2.9	13.1	8.5	3.7
VIASA (Venezuela) .....	4.9	38.7	10.5	7.0	7.3	7.5	19.6	9.4	—
Simple average .....	8.1	28.3	15.8	9.1	12.4	5.7	19.6	8.3	0.8

SOURCE: International Civil Aviation Organization (ICAO), *Digest of Statistics No. 145; Financial Data*, 1968, p. 50.

<sup>a</sup> Including wages and salaries and expenses of crews.

<sup>b</sup> Included in "Other operating expenses".

electricity enterprises, satisfying the entire public demand.

In Chile, ENDESA, which was established in 1943 as a limited company with 97 per cent of the shares in the hands of CORFO, produces two thirds of the energy for public consumption; nearly all the remainder is generated by a private company which became a semi-public enterprise at the end of 1970 when the State purchased 51 per cent of the shares.

There are two or more public or semi-public enterprises in Argentina, Brazil and Venezuela. In Argentina, for example, the State-owned Agua y Energía Eléctrica and SEGBA S.A. generate approximately three-quarters of the energy for public consumption. Two State-owned limited companies, CADAFE and EDELCA, are operating in Venezuela; they were established with capital provided by the Venezuelan Development Corporation and the Venezuelan Guayana Corporation, respectively. Between them they supply about 60 per cent of the total public consumption of energy.

The position of public enterprises producing electric energy in Brazil became more complex when ELETROBRAS started operating in 1962. This new semi-public company in which

the Federal Government has a majority share controls sixteen subsidiary electric power enterprises, owning about 90 per cent of their capital. It also has a minority share (an average of 12 per cent) in nineteen others, mostly local state and semi-public enterprises. In 1968, the subsidiaries of ELETROBRAS produced 36 per cent of the total energy for public consumption and the associated public enterprises produced 27 per cent.

#### (b) *Financial results of operation*

Owing to the rapid growth of demand for electric energy in all the Latin American countries, the public electric power enterprises have had to expand steadily. This has entailed heavy investment, which is nearly always too large to allow of self-financing. The funds are generally obtained from three sources: State contributions, external credit and reinvestment of profits. Domestic credit is little used owing to the slow recovery of and low return on this type of investment.

Argentina's Agua y Energía Eléctrica was able to finance about half of its investment with its own resources in 1968, 8 per cent consisted of funds obtained from a federal development

**Table 21**

**LATIN AMERICA: SHARE OF STATE ENTERPRISES IN THE PRODUCTION OF CRUDE PETROLEUM AND REFINING CAPACITY, BY COUNTRY, 1969**

(Percentages)

Country	Enterprise	Production	Refining
Argentina	Yacimientos Petrolíferos Fiscales (YPF)	71.9 <sup>a</sup>	58.9
Bolivia	Yacimientos Petrolíferos Fiscales Bolivianos (YPPFB)	28.0 <sup>b</sup>	100.0
Brazil	Petróleo Brasileiro (PETROBRAS)	100.0	98.3
Colombia	Empresa Colombiana de Petróleo (ECOPETROL)	18.5	55.3
Cuba	Empresa Petrolera Cubana (E.P.C.)	100.0	100.0
Chile	Empresa Nacional de Petróleo (ENAP)	100.0	100.0
Mexico	Petróleos Mexicanos (PEMEX)	100.0	100.0
Peru	Petróleos del Perú (PETROPERU)	24.8	64.5
Uruguay	Administración Nacional de Combustibles, Alcohol y Portland (ANCAP)	—	100.0
Venezuela	Corporación Venezolana del Petróleo (CVP)	0.9	1.4

SOURCE: ECLA, on the basis of official statistics.

<sup>a</sup> Output of YPF proper. If the production of enterprises under contract with YPF is added, the proportion rises to 98.9 per cent.

<sup>b</sup> This situation changed radically when the Bolivian Gulf Oil Company was nationalized in October 1969.

agency, and the rest of internal and external credit. On the other hand, a large part of the investment of two semi-public enterprises in Brazil (70 and 30 per cent, respectively) was financed by the paying up of shares that had been subscribed by the state and federal governments; self-financing accounted for 10 per cent of investment in the first enterprise and 28 per cent in the second. External credit played an important part (15 per cent) only in the first enterprise, and federal funds in the second (36 per cent). ENDESA (Chile) financed 35 per cent of its investment and new plant with external credit, 35 per cent from reinvestment of profits, and the remaining 30 per cent from State contributions.

Whether or not an enterprise can cover its own investment expenditure will obviously depend on its profitability, one indicator of which is the ratio of net operational income to fixed assets. In using this indicator, it must be borne in mind that the validity of the comparisons is limited by the differences in presentation and even in the criteria for classifying the items in the balance sheets and profits and loss accounts of the various enterprises. Despite these reservations, however, some conclusions may be reached. It will be noted, for example, that of the twenty enterprises considered—which produce 66 per cent of the

total energy for public consumption—a return of over 10 per cent was recorded in six enterprises, 5 to 10 per cent in nine, and less than 5 per cent in five (see table 29). In Brazil, this ratio was 7.5 per cent in fourteen subsidiaries of ELETROBRAS, and 8.9 per cent in fourteen other enterprises in which it has a minority share.

In order to assess the profitability of enterprises from a different standpoint, an attempt was made to measure the gross operating profit,<sup>18</sup> in terms of dollars per kWh sold. This

<sup>18</sup> The difference between operating receipts and direct cost plus administrative expenditure.

**Table 22**

**LATIN AMERICA: MANPOWER EMPLOYED BY STATE-OWNED PETROLEUM ENTERPRISES, 1968-1969**

Enterprise	Year	Number of workers and employees
YPF (Argentina)	1969	34,160
YPPFB (Bolivia)	1969	4,899
PETROBRAS (Brazil)	1969	34,101
ENAP (Chile)	1968	4,139
ECOPETROL (Colombia)	1969	3,601

SOURCE: Reports of the various enterprises, and ECLA on the basis of official statistics.

**Table 23**  
**ARGENTINA: SHARE OF YPF IN THE DOMESTIC MARKET**  
**FOR PETROLEUM PRODUCTS, 1969**

<i>Product</i>	<i>Percentage share</i>	<i>Product</i>	<i>Percentage share</i>
Aviation gasoline .....	60.2	Fuel for jet aircraft .....	42.0
Ordinary gasoline .....	55.7	Gas oil .....	56.6
Special gasoline .....	53.8	Diesel oil .....	71.6
Kerosene .....	54.0	Fuel oil .....	61.1

SOURCE: *Petrotecnia*, June 1970.

indicator is more directly related to the rate level; but comparability may be impaired on account of the exchange rate used for the dollar, since in general this was the free market rate or the highest official rate, which is sometimes quite different from a parity exchange rate based on real purchasing power. Bearing in mind these reservations, it can be seen that the profits of some enterprises in Brazil, Chile, Colombia, Mexico, Peru and Venezuela are quite small compared with those of enterprises in Argentina, Costa Rica, the Dominican Republic, Panama and Paraguay, which are very much larger (see table 29).

Moreover, it is enlightening to compare the sale prices of the energy supplied by several large enterprises.<sup>19</sup> It will be noted that the average sale price of 1 kWh ranges from just over ten thousandths of a dollar<sup>20</sup> in one Bogotá enterprise and three enterprises in

<sup>19</sup> Comparisons of average prices between countries, or even between enterprises in the same country, should be made with caution because of possible distortions on account of the exchange rates used, and because of the varying composition of the supply to sectors with differential rates.

<sup>20</sup> In general, at 1968 free market exchange rates.

Brazil to thirty-four thousandths in Argentina and Panama; it is seventeen to nineteen thousandths of a dollar in Costa Rica, Mexico and Peru, and twenty-two and twenty-nine thousandths in the case of two Venezuelan enterprises. In Chile, the average price of twenty-eight thousandths of a dollar in the most important private company (which is closer to the consumer price level) is twice that of the State-owned enterprise, because the latter makes block assignments of its production to private distributors and large-scale basic industries.

In order to compare 1968 prices with those prevailing in 1959, for which year data are available, the average 1968 prices were deflated by the consumer price index (see table 30). An attempt was made to use information for the same enterprises for the two years, which limited the number of observations. It will be seen that prices fell in five of the nine countries considered. In Argentina, there was a drop of just over 10 per cent in both a public and a private enterprise. The reductions in the real price of 1 kWh sold by the largest private company in Peru and by the Comisión Federal de Electricidad in Mexico

**Table 24**  
**BOLIVIA: PETROLEUM EXPORTS**  
*(Thousands of cubic metres)*

<i>Year</i>	<i>YFFB</i>	<i>Bolivian Gulf Oil Company</i>	<i>Bolivian Oil Company</i>	<i>Total</i>
1963 .....	107.9	—	20.5	128.4
1966 .....	50.0	245.2	4.3	299.5
1968 .....	402.0	1,300.0	—	1,702.0
1969 .....	512.2	1,085.3	—	1,597.5

SOURCE: Dirección General de Petróleo, cited in Ministerio de Planificación y Coordinación, *Estrategia socio-económica del desarrollo nacional, 1971-1991*, vol. II, page 394.

**Table 25**  
**CHILE: SHARE OF ENAP'S PRODUCTION IN**  
**TOTAL CONSUMPTION OF PETROLEUM**  
**PRODUCTS, 1968**

<i>Product</i>	<i>Percentages</i>
Gasoline .....	100
Kerosene .....	100
Liquid gas .....	100
Diesel oil .....	95
Fuel oil .....	75

SOURCE: ENAP, *Memoria 1968*.

were 22 and 17 per cent, respectively. In the case of the latter enterprise, a radical change took place in the composition of consumption, parallel with its expansion since 1960; when Mexico nationalized its electric power industry; Venezuela also registered a drop in unit prices, which was minimal for the State enterprise, CADAPE, but as much as 17 per cent in the case of one important private company. In Panama, the price of 1 kWh sold by the *Compañía Panameña de Fuerza y Luz* dropped 30 per cent between 1959 and 1968. Of the three countries where inflation was most acute, it is curious to note that the real average sales price rose in Brazil and Chile, and fell by about 10 per cent in Argentina.

There were also changes in consumption by type of user of the energy produced. For exam-

ple, one Brazilian State enterprise showed a rise of 12 per cent in the over-all price, which reflected the same average price for industrial consumption, minor increases in the commercial sector and larger increases in the prices of household supply. In contrast, the *Empresa de Energía Eléctrica de Bogotá* spread the increase in its average price (19 per cent) over both industrial consumption (86 per cent) and commercial consumption (54 per cent), while the price of 1 kWh of household supply remained practically unchanged from 1959 to 1968.

### 6. Steel enterprises

#### (a) *Importance in the sector*

In 1966, out of a total of seventeen major integrated enterprises producing 80 per cent of the region's steel, eight were State enterprises proper and accounted for 47 per cent of production (see table 31); two others, with mixed private and public capital, accounted for 12 per cent; two controlled by foreign capital accounted for 7 per cent; and the remaining five, owned by domestic private investors were responsible for 14 per cent.

Steel enterprises have to increase their capital continually to finance the large amount of investment required to keep pace with the rapid growth of demand. For example the Chilean *Compañía de Acero del Pacífico* (CAP), which began operations in 1950 with

**Table 26**  
**STATE PETROLEUM ENTERPRISES: SOME ECONOMIC AND FINANCIAL**  
**INDICATORS AROUND 1968-1969**

(Percentage ratios)

	<i>Operating surplus</i>	<i>Gross profit</i>	<i>Gross profit</i>
	<i>Income from sales</i>	<i>Income from sales</i>	<i>Capital</i>
YPF (Argentina) .....	30.7	...	...
YPFB (Bolivia) .....	...	40.4	...
PETROBRAS (Brazil) .....	...	34.9	51.8
ENAP (Chile) .....	40.9	31.6 <sup>a</sup>	20.5 <sup>a</sup>
ECOPETROL (Colombia) ..	19.0	...	...
PEMEX (Mexico) .....	14.8 <sup>b</sup>	...	...
CVP (Venezuela) .....	...	20.0 <sup>b</sup>	7.3 <sup>b</sup>

SOURCE: Annual reports of the enterprises, and ECLA on the basis of official statistics.

<sup>a</sup> Net profit for financial year 1 July 1967-30 June 1968. Income from sales during this period was 662.2 million escudos.

<sup>b</sup> Net profits.

**Table 27**  
**SHARE OF STATE PETROLEUM ENTERPRISES**  
**IN TOTAL GROSS FIXED INVESTMENT OF**  
**THE COUNTRY AND OF THE PUBLIC SEC-**  
**TOR, AROUND 1968-1969**

(Percentages)

	Share in total gross fixed in- vestment	Share in fixed in- vestment of public sector
YPF (Argentina) . . . . .	4.4	11.7
PETROBRAS (Brazil) . . . .	3.8	15.2 <sup>a</sup>
ENAP (Chile) . . . . .	2.4	4.4
ECOPETROL (Colombia) . . .	2.3	10.7
PEMEX (Mexico) . . . . .	8.2	21.9

SOURCE: Annual reports of the enterprises, and ECLA, on the basis of official statistics.

<sup>a</sup> General government investment only.

a capital of 15 million dollars, by 1969 had a subscribed and paid-up capital of 79 million. The capital and reserves of Altos Hornos de México S.A. (AHMSA) increased at current prices from 313 million pesos in 1958 to 1,166 million in 1967. These increases in capital may reflect changes in ownership as, for example, in the case of the Colombian enterprise Acería Paz del Río, with an annual output of 200,000 tons, which has passed almost entirely into private hands as a result of a fiscal measure granting tax exemptions to persons purchasing shares in the enterprise at face value in an amount equal to their tax liabilities. The opposite has happened with CAP in Chile—whose annual output of steel amounts to 592,000 tons—in which the Government's share was gradually reduced as a result of increases in capital until in 1965 it amounted to only 25 per cent of the total. In 1969, however, CORFO purchased shares from private shareholders until it had secured 52 per cent of the total share capital.

According to a survey made in 1964 by the Latin American Iron and Steel Institute,<sup>21</sup> covering twenty-two integrated and semi-integrated enterprises in the region, investment financing came from the following sources: 43.7 per cent from the public sector; 5.7 per cent from the domestic private sector; 2.5 per

<sup>21</sup> ILAFA, *Condiciones económicas que regulan el crecimiento de la producción latinoamericana de acero*, a document presented to the Second United Nations Inter-regional Symposium on the Iron and Steel Industry, held at Moscow, September-October 1968.

cent from the external private sector; about 19.5 per cent from domestic credit and roughly the same proportion from external credit, while reinvested profits accounted for only 4.6 per cent.

The situation of State steel companies varies a great deal from one country to another. In Argentina, the State enterprise Sociedad Mixta Siderúrgica Argentina (SOMISA) accounts for about 55 per cent of domestic steel production and has a sales volume of 70,000 million pesos. The other integrated enterprise in Argentina is Altos Hornos de ZAPLA, a public enterprise managed by the Dirección General de Fabricaciones Militares which accounts for slightly over 6 per cent of domestic output. The remainder is produced by semi-integrated enterprises, notably Siderca, Industria Argentina de Aceros, Establecimientos Metalúrgicos Santa Rosa and La Cantábrica, which account for over 30 per cent of total ingot production. Siderca produces about 100,000 tons of seamless pipe and Acindar about 230,000 tons of rolled products.

In Brazil, four large State enterprises account for 60 per cent of steel output in ingots and 57 per cent of the output of rolled products. In 1968, the Companhia Siderúrgica Nacional produced 1.3 million tons of ingots at its Volta Redonda plant, and over 1 million tons of rolled products. In terms of volume of production, it is followed by Usinas Siderúrgicas de Minas Gerais—USIMINAS (650,000 tons), Siderúrgica Paulista (COSIPA) with 560,000 tons, and ACESITA. Some 21 per cent of the

**Table 28**  
**STATE PETROLEUM ENTERPRISES: FINANC-**  
**ING OF INVESTMENT AND CAPITAL EX-**  
**PENDITURE, AROUND 1968/1969**

(Percentage ratios)

	Own re- sources <sup>a</sup>	Own re- sources <sup>a</sup>
	Gross fixed in- vestment	Capital expendi- ture
YPF (Argentina) . . . . .	96.5	81.4
PETROBRAS (Brazil) . . . .	117.6	68.5
ENAP (Chile) . . . . .	175.6	91.9
ECOPETROL (Colombia) . . .	77.7	61.9
PEMEX (Mexico) . . . . .	54.8	...

SOURCE: Annual reports of the enterprises, and ECLA, on the basis of official statistics.

<sup>a</sup> Including operating surplus and other capital returns.

**Table 29**  
**LATIN AMERICA: LARGEST PUBLIC ELECTRIC POWER SUPPLY ENTERPRISES, 1968<sup>a</sup>**

Enterprise	Production (GWh)	Sales	Operating income and expenditure				Results as a percent- age of fixed assets	Gross profit per kWh sold (Thousands of a dollar)	Average price of kWh sold	
			Sales	Total income	Expendi- ture	Results				
			(Millions of currency units of each country)							
<i>Argentina</i>										
	13,471									
Agua y Energía Eléctrica (A y E) . . . . .	S	3,929	3,412	34,552.0	34,552.0	28,461.0	6,091.0	4.8 <sup>b</sup>	11.57	28.93
Servicios Eléctricos del Gran Buenos Aires (SEGBA) . . . . .	S	6,306	5,429	67,100.0	67,789.0	49,555.0	18,234.0	21.7	14.81	35.31
Compañía Italo Argentina de Electricidad (CIAE) . . . . .	Pr	1,087	974	13,323.0	14,866.0	11,262.0	3,604.0	8.8	15.78	39.07
<i>Brazil</i>										
	34,437									
Eletrobras . . . . .	S	12,280 <sup>c</sup>								
Central Elétrica de São Paulo . . . . .	S	2,553	2,677	97.0	97.9	62.0	35.9	6.2	6.84	9.45
Companhia Hidroelétrica de São Francisco	S	2,838	2,535	69.6	70.0	36.9	33.1	8.6	5.82	7.15
Central Elétrica de Minas Gerais (CEMIG) . . . . .	S	3,155	3,150	123.3	123.6	70.7	52.9	11.1	5.77	10.21
Light—Serviços de Eletricidade S.A. . .	Pr	12,787	15,329	884.6	884.9	658.2	226.7	11.4	6.16	15.06
<i>Colombia</i>										
	6,522									
Empresa de Energía Eléctrica de Bogotá (EEE) . . . . .	S	1,669	1,453	261.3	270.5	125.8	144.7	10.0	8.03	10.61
<i>Chile</i>										
	4,348									
Empresa Nacional de Electricidad (ENDESA) <sup>d</sup> . . . . .	S	2,530	2,318	459.9	473.6	366.5	107.1	3.3	8.98	14.43
Compañía Chilena de Electricidad (CHILECTRA) . . . . .	Pr	1,779	1,942	473.9	487.5	417.5	70.0	5.0 <sup>e</sup>	6.51	28.01
<i>Costa Rica</i>										
	771									
Instituto Costarricense de Electricidad . .	S	497	486	64.3	64.5	50.0	14.5	3.7	11.28	18.00
<i>El Salvador</i>										
	542									
Comisión Ejecutiva Hidroeléctrica del Río Lempa (CEL) . . . . .	S	501	466	18.2	18.7	9.4	9.3	8.5	10.00	15.64
<i>Mexico</i>										
	19,400									
Comisión Federal de Electricidad <sup>f</sup> . . . .	S	17,200	13,908	2,877.3	2,889.8	1,956.1	933.7	6.2	7.37	16.56
<i>Paraguay</i>										
	122									
Administración Nacional de Electricidad (ANDE) . . . . .	S	119	90	679.5	689.4	477.6	211.8	3.6	23.7	60.00

Table 29 (continued)

Enterprise	Production (GWh)	Sales	Operating income and expenditure				Results as a percent- age of fixed assets	Gross profit per kWh sold (Thousands of a dollar)	Average price of kWh sold	
			Sales	Total income	Expendi- ture	Results				
<i>Panama</i>										
Compañía Panameña de Fuerza y Luz .. Pr	553	456	387	13.2	13.2	8.6	4.6	15.3 <sup>g</sup>	17.1	34.09
<i>Peru</i>										
Empresas Eléctricas Asociadas (EEA) .. Pr	2,286	1,155	1,565	1,320.0	1,340.8	925.3	415.5	9.1	9.09	19.09
<i>Dominican Republic</i>										
Corporación Dominicana de Electricidad S	700	700	529	18.2	18.3	13.4	4.9	8.1	13.4	34.38
<i>Uruguay</i>										
Usinas Eléctricas del Estado .....	1,883	1,883	1,513	...	...	...	...	...	...	...
<i>Venezuela</i>										
C.A. de Administración y Fomento Eléctrico (CADAFE) <sup>h</sup> .....	8,375	2,189	1,842	237.1	237.8	225.1	12.7	1.8	7.55	28.60
Electrificación del Caroní (EDELCA) .. S		2,690	2,554	35.2	35.2	14.3	20.9	10.4	1.82	3.07
C.A. La Electricidad de Caracas .....		2,273	1,974	206.4	207.2	124.5	82.7	18.2	9.31	23.24
<i>Total Latin America</i> .....	<i>100,675</i>									

SOURCE: Annual reports and balance sheets of the enterprises.

<sup>a</sup> State enterprises (S) include state and municipal enterprises, and semi-public enterprises in which private investors hold a minority share of the capital. Sales include energy purchased from other enterprises and are considered at the user level, i.e., the enterprise's own consumption and losses in transmission were deducted. Operating expenditure includes, in addition to direct costs and administrative expenses, the amounts set aside for depreciation, amortization and taxes, except for taxes on profits and dividends. Gross profit was considered to be only the difference between operating income and direct costs and administrative overheads. For the comparison of the results of operation, construction work in progress was not considered as fixed assets, but revaluation and depreciation were included. To arrive at the figures in thousandths of a dollar in the last two columns, the following exchange rates (national currency to the dollar) were used: Argentina 350, Brazil 3.83, Colombia 16.95, Chile 8.71 for 1968 and 11.52 for 1969, Costa Rica 7.35, El Salvador 2.50, Mexico 12.49, Paraguay 126, Panama and Dominican Republic at par, Peru 44.19, and Venezuela 4.50 for 1967 and 1968. The resulting figures are not always

comparable between countries as the rates used are not parity exchange rates.

<sup>b</sup> The value of the fixed assets includes that of drinking water supply plant, which it was not possible to deduct.

<sup>c</sup> Figure for the sixteen subsidiary enterprises, including the Companhia Hidroelétrica de São Francisco, which is also given separately.

<sup>d</sup> The production and sales figures in the first two columns are for 1968; the rest are for 1969.

<sup>e</sup> Revaluation, which was pending approval, was not taken into account in the figure for fixed assets.

<sup>f</sup> The production figure is for the period September 1967-August 1968 only; the other figures are for 1967.

<sup>g</sup> Only the proportion relating to electric energy generation was considered in the figure for fixed assets, the depreciation figure which was deducted being calculated proportionally.

<sup>h</sup> Financial year 1967.

Table 30  
LATIN AMERICA: AVERAGE SALES PRICES  
OF ELECTRIC ENERGY

(Average price of 1 kWh in 1959  
national currencies)<sup>a</sup>

	1959	1968
<i>Argentina</i>		
Servicios Eléctricos del Gran Buenos Aires .....	1.92	1.72
Compañía Italo Argentina de Electricidad .....	2.21	1.92
<i>Brazil</i>		
Central Elétrica de Minas Gerais	0.989	1.098
<i>Colombia</i>		
Empresa de Energía Eléctrica de Bogotá .....	0.0517	0.0703
<i>Chile</i>		
Empresa Nacional de Electricidad .....	0.016	0.0176
Compañía Chilena de Electricidad .....	0.0245	0.0359
<i>Costa Rica</i>		
Instituto Costarricense de Energía Eléctrica .....	0.097	0.110
<i>Mexico</i>		
Comisión Federal de Electricidad .....	0.202	0.167 <sup>b</sup>
<i>Panama</i>		
Compañía Panameña de Fuerza y Luz .....	0.045	0.031
<i>Peru</i>		
Empresas Eléctricas Asociadas	0.45	0.35
<i>Venezuela</i>		
C.A. de Administración y Fomento Eléctrico .....	0.122	0.120 <sup>b</sup>
C.A. Eléctrica de Caracas .....	0.116	0.097

SOURCE: Annual reports and balance sheets of enterprises.

<sup>a</sup> The 1968 prices were deflated by the consumer price index.

<sup>b</sup> Figure for 1967.

capital of USIMINAS is Japanese-owned. The main private enterprises are Compañía Siderúrgica Belgo-Mineira (540,000 tons) and Compañía Siderúrgica Mannesmann (260,000 tons), both with some share capital of foreign origin.

Another large steel company in the region is the State enterprise Altos Hornos de México

S.A., which produced 1,374,000 tons of ingots at its Monclova plant in 1968, accounting for 40 per cent of national production. There are also two other integrated steel enterprises in Mexico, controlled by private capital, which receive financial support from the Government through Nacional Financiera S.A. and the Banco de México and produce approximately 35 per cent of national output, namely Compañía Fundidora de Monterrey and Hojalata y Lámina S.A. Notable among the semi-integrated enterprises in Mexico is Tubos de Acero de México S.A. (TAMSA) which produced 111,000 tons of sponge iron and 244,000 tons of steel in 1968.

Among the other integrated enterprises in the region are Siderúrgica del Orinoco C.A. (SIDOR) in Venezuela, which is a State enterprise and a subsidiary of the Venezuelan Guayana Development Corporation whose output accounts for roughly 80 per cent of total national steel output; and Sociedad Siderúrgica de Chimbote (SOGESA) in Peru—also a State enterprise—which has a smaller output.

#### (b) Financial results of operation

The financial results shown on the balance sheets of the steel enterprises are relatively favourable, although the surpluses are not generally large enough to finance expansion programmes.

A look at the financial situation of the largest State-owned steel enterprises in the region can provide some indication of their profitability and the structure of their expenditure (see table 32). All the enterprises considered showed a surplus in the period studied, ranging from 5.1 per cent of the value of sales in the case of AHMSA (Mexico) to 19.5 per cent for SOMISA (Argentina); the comparable figure for the largest Brazilian enterprise, Compañía Siderúrgica Nacional, was 5.6 per cent, and for CAP (Chile) 9.3 per cent.

Expressed as a ratio to capital plus reserves, profits by CAP amounted to 14.6 per cent and AHMSA 8 per cent. The Brazilian Compañía Siderúrgica Nacional had a ratio of 5.4 per cent in 1968 (disregarding the deficit stemming from its administration of the Usina de Mogi das Cruces), but in 1969, according to a survey covering a large number of enterprises in many branches of Brazilian industry,<sup>22</sup> it had raised this ratio to 7.8 per cent. The ratio of profits to capital and reserves was 4.7 per

<sup>22</sup> "Quem é quem na economia brasileira?", in *Visão*, August 1970.

**Table 31**  
**LATIN AMERICA: OUTPUT OF THE LARGEST STEEL ENTERPRISES<sup>a</sup>**  
*(Thousands of tons)*

<i>Country and enterprise</i>	<i>Integrated or semi- integrated</i>	<i>Owner- ship</i>	<i>Steel ingots</i>	<i>Steel products</i>
<i>Argentina</i>			<i>1,697</i>	
Sociedad Mixta Siderurgia Argentina (SOMISA) .....	I	S	846	529
Altos Hornos de Zapla .....	I	S	82	38
Dalmine Siderca S.A. ....	SI	Pr	163	94
Industria Argentina de Aceros (ACINDAR) .....	SI	Pr	89	230
Establecimientos Metalúrgicos Santa Rosa .....	SI	Pr	110	112
La Cantábrica .....	SI	Pr	57	56
<i>Brazil</i>			<i>4,902</i>	
Companhia Siderúrgica Nacional ..	I	S	1,334	1,007
Usinas Siderúrgicas de Minas Gerais	I	S	649	502
Companhia Siderúrgica Paolista (COSIPA) .....	I	S	558	413
Companhia Siderúrgica Belgo-Mineira .....	I	Pr	538	430
Companhia Siderúrgica Mannesmann .....	I	Pr	260	219
Siderúrgica Rio Grandense .....	SI	Pr	146	123
Companhia Aços Itabira Acesita ..	I	S	131	77
Siderúrgica Barra Mansa .....	I	Pr	113	96
Siderúrgica J.L. Aliperti S.A. ....	I	Pr	102	84
M. Dedini S.A. Metalúrgica .....	SI	Pr	83	78
Companhia Ferro e Aço de Vitoria	SI	S	—	69
Usina Siderúrgica São José S.A. ..	SI	Pr	69	51
Aços Anhanguera .....	SI	Pr	72	47
<i>Colombia</i>			<i>257</i>	
Acerías Paz del Río S.A. ....	I	Pr	196	164
<i>Chile</i>			<i>647</i>	
Compañía de Acero del Pacífico (CAP) .....	I	S	592	450
<i>Mexico</i>			<i>3,421</i>	
Altos Hornos de México S.A. ....	I	S	1,374	925
Compañía Fundidora de Monterrey S.A. ....	I	Pr	621	395
Hojalata y Lámina S.A. ....	I	Pr	453	388
Tubos de Acero de México (TAMSA) .....	SI	Pr	244	163 <sup>b</sup>
Aceros Ecatepec .....	SI	Pr	78	93
<i>Peru</i>			<i>192</i>	
Sociedad Siderúrgica de Chimbote (SOGESA) .....	I	S	61	51

Table 31 (continued)

Country and enterprise	Integrated or semi-integrated	Ownership	Steel ingots	Steel products
Venezuela			840	
Siderúrgica del Orinoco C.A. (SIDOR)	I	S	54	...
Latin America			11,969	

SOURCE: Instituto Latinoamericano del Fierro y del Acero, *Revista Latinoamericana de Siderurgia* No. 125, September 1970; *Repertorio de las Empresas Latinoamericanas*, 1969; Nacional Financiera S.A.: *Informe de Actividades 1969* (Mexico); Compañía de Acero del Pacífico S.A.: *Memoria Anual 1968-1969*; Centro de Industria Siderúrgica: *La Siderurgia Argentina en 1968*.

<sup>a</sup> The entries against each enterprise indicate the following: I—integrated enterprise; SI—semi-integrated enterprise; S—State enterprise; and Pr—private enterprise. The regional and country totals are for 1969. The output of each enterprise is normally that for 1967, except for the Brazilian enterprises, SOMISA in Argentina and AHMSA and TAMSA in Mexico, which is the output for 1968. The figures for CAP in Chile correspond to the financial year 1968-1969.

<sup>b</sup> Also produces 111,000 tons of sponge iron.

cent for USIMINAS, a semi-public enterprise, and 21.3 per cent for the private enterprise Siderúrgica Mannesmann. The ratio was negligible in the case of COSIPA and only 1.4 per cent in the case of ACESITA, but this was due to the fact that both these enterprises are in the process of expanding capacity and therefore current production is not in line with the high level of their capital and reserves.

Both the Compañía Siderúrgica Nacional and AHMSA have experienced a decline in their profits/sales ratios. Up to 1965, the former achieved high ratios (in 1963 it was 29.4 per cent), while for AHMSA the profits/sales ratio fell from 6.9 to 5.5 per cent between 1960 and 1967, and the ratio of profits to capital and reserves from 12 to 7.8 per cent.

In Chile, CAP's ratio of profits to capital and reserves has been very variable. In the period 1952-1955 it averaged 24 per cent, fell to 11 per cent during 1956-1961, and then rose to 22 per cent in 1963-1964, since when it has fluctuated around the 12.8 per cent mark. SOMISA in Argentina, on the other hand, did very well in 1969 (a profits/sales ratio of 19.5 per cent), and very much better than the average for the preceding three years, which was 10 per cent.

The profits ratios of these enterprises are not very closely related to the price trends of certain steel products<sup>23</sup> in the major domestic

<sup>23</sup> The data on prices for steel products were obtained from ILAFA, *Anuario Estadístico 1969*, and deflated using appropriate consumer-price indexes.

markets, particularly in the case of SOMISA. In Buenos Aires between 1965 and 1969, the price of concrete reinforcing bars and zinc-coated sheets declined by about 20 per cent in real terms; prices for other rolled products and wire rods declined by about 25 per cent and for angles and flats by about 36 per cent.

Over the same period, prices for all rolled products in São Paulo fell by about 9 per cent, but for all other steel products they rose by 5 per cent. In Santiago, there was a general price rise for steel products of 40 per cent; in Mexico City prices declined in varying degrees, ranging from a 17.5 per cent drop for wire bars to 4.4 per cent for rolled products, except for concrete reinforcing bars which rose slightly in price.

The role played by profits in the financing of capital expenditure in these enterprises has varied a great deal and has been influenced in particular by the scale of investment, which itself is dependent on the achievement of expansion programmes. The profits of SOMISA in 1969 and CAP in the financial year 1968-1969 were well above the level of real investment in the same years (virtually double for SOMISA and 55 per cent greater for CAP), and yet SOMISA's overall surplus was not large enough to cover all capital expenditure owing to the high level of expenditure under the head of "Other investment". With Compañía Siderúrgica Nacional in Brazil, profits represented 87 per cent of capital formation during 1968, and in Mexico in 1967 AHMSA's

**Table 32**  
**LATIN AMERICA: RATIOS INDICATING THE FINANCIAL POSITION**  
**OF FOUR STEEL ENTERPRISES**

(Percentages)

	<i>SOMISA</i> (Argentina) 1969	<i>Companhia</i> <i>Siderurgica</i> <i>Nacional</i> (Brazil) 1968	<i>CAP</i> (Chile) 1968-69	<i>AHMSA</i> (Mexico) 1967
Profits/capital and reserves . . . . .		5.4	14.6	8.0
Profits/sales . . . . .	19.5	5.6	9.3	5.1
As a percentage of sales:				
Administrative costs and expenditure . . . . .	87.8	74.2	71.6	72.9
Depreciation and amortization . . . . .			11.7	11.5
Taxes . . . . .		16.9	—	5.3
Interest on long-term loans . . . . .	4.3	5.1	2.8	5.4
Other interest payments and financial expenditure . . . . .			4.9	1.8

SOURCE: Annual reports, accounts and balance-sheets of the enterprises, except in the case of SOMISA, for which the data were obtained from the Ministry of the Treasury, Dirección Nacional de Programación Presupuestaria, *Finanzas del sector público 1966-1970*.

profits did not amount to as much as half real investment (see table 32).

It is somewhat more difficult to compare the structure of expenditure in these enterprises owing to differences in the presentation of data. There is a striking similarity between CAP and AHMSA as regards the structure of expenditure in relation to sales. Expendi-

ture in respect of interest and financial costs is relatively high for both; almost the same level as profits in the case of CAP and appreciably higher in the case of AHMSA. Worthy of note is the effect of taxes in the Companhia Siderúrgica Nacional, which unfortunately could be compared only with AHMSA for want of information.

#### IV. POLICY ON THE PUBLIC ENTERPRISE SECTOR: ALTERNATIVES AND QUERIES

The importance and far-reaching influence of public enterprises highlight the need to define a policy on their operations and functions. As was said at the beginning of this chapter, that need does not appear to have been satisfactorily met up to now.

This lack or inadequacy could be put down to several factors, one being the diversity of the activities concerned, and another the incorporation of enterprises in the sector over a long period of time, in response to differing needs and with different degrees of urgency which sometimes coincided with the requirements of different stages of development. Moreover, the very conception or grouping of State enterprises as a "sector" is a departure

from the normal procedure of lumping them together with private firms under the heading of "enterprises". However, there has been a clear trend, particularly in Europe, towards considering public enterprises separately and as a whole sector.

In view of Latin America's position with regard to public enterprises and the field covered by this article, a brief review and discussion are in order of the aspects which are most relevant and must be defined in any policy or policies that may be formulated for the sector.

Starting with the points that are directly relevant and about which there is the least

argument, the first question to be considered is what role the sector might play in the accumulation of investment capital.

Mention has already been made of the many different views expressed for and against public enterprises. However, recent trends seem to indicate that the balance is inclining in their favour. This is made clear in a detailed study on recent policy orientation in different representative economies,<sup>24</sup> in which it is stated:

"... in several developing countries observed, the sentiment of supervisory authorities is increasingly more favourably disposed to the commercial profitability criterion. In India, to begin with, public enterprise was characterized, when development planning was instituted, as 'actuated by basic development objectives'. In the early days of development planning, there was evidence of official hostility to the notion of commercial profitability. More recently, a different doctrine has been enunciated, namely, that public enterprises should behave so as to generate surpluses or profits for self-financing of their capital expansion. Proponents have pointed out that self-financing out of retained earnings has been a major source of capital formation in private industry in developed countries. Reference has also been made to the fact that State enterprises in the Soviet Union and other centrally-planned economies are conducted so as to yield a 'profit' for financing high rates of capital formation. The shift away from the practice of 'no profit, no loss' in the British nationalized industries together with the renewed emphasis on profit in the recent Soviet reform programme have reinforced this trend of official thinking. The profitability criterion, it seems, has now become the accepted official doctrine."

A Brazilian authority, on a study of the problem of the financing of the public enterprises that would form the nucleus of economic expansion (petroleum, electric energy, steel and iron ore), points to three principal means of action: accumulation of funds through forced saving, a profitable commercial policy, and doing away with paternalism in the social

<sup>24</sup> See "Improving profit performance of public enterprises in developing countries" (ST/ECLA/CONF.35/L.8), pp. 3 and 4, paper presented by the Public Administration Division of the United Nations to the Meeting of Experts on Administration of Public Enterprises in Latin America and the Caribbean (Santiago, 17-22 November 1969).

services that are financed by price subsidies and other means.<sup>25</sup>

Of course, no simple deductions can be drawn from the prevailing trend, and the diverse levels of preparedness of the different public enterprises to become profit-makers cannot be left out of account. Some would have no difficulty in doing so because of their favourable position on the market. For others however, it would be almost out of the question and they could become profit-making only within certain limits, as in the case of railways, whose position has already been discussed.

On the other hand, it might also be possible to apply a policy of profitability to the sector as a whole, or even to groups of similar or related enterprises, and not to each individual firm. This point will be taken up again later, when internal relations in the sector are dealt with.

Lastly, account should be taken of the fact that investment is not a steady flow, and of the magnitude of the resources required for expansion. Obviously, these investment requirements cannot, as a rule, be met from the enterprises' over-all surplus or even from that of the whole sector when it is under co-ordinated management. Recourse would have to be had to other sources of savings, and for that purpose it would doubtless be an advantage for the individual enterprises or the sector as a whole to have fairly large operating surpluses which would help to meet the commitments undertaken in the circumstances described above.

It should not be inferred from the above that the formation of capital for investment or, in other words, the profitability of the enterprise, depends solely on decisions concerning prices and rates. Other factors that have an influence were mentioned earlier, such as the general efficiency of operations and wage and salary levels. These are subjects about which there has been considerable controversy, and their complexity precludes the possibility of any clear-cut approach that could be generally applied. At all events, it seems very clear that the approach to these and other relevant questions will depend to a large extent on the adoption or rejection of the basic orientation described above, that is, that the enterprises concerned or the sector as a whole should play an important part in the formation

<sup>25</sup> See Antonio Días Leite, Minister of Mining and Energy in Brazil, *Empresa pública e desenvolvimento econômico* (Rio de Janeiro, 1965).

and mobilization of savings for priority investment.

For these reasons, there is no doubt that State ownership of enterprises and the trend towards nationalization of the most important public utilities has, in theory, increased the chances of applying a policy of the type described above.

### 1. *Position in the public sector and in planning machinery*

Another important question which has not yet been properly clarified, and is therefore still controversial, is the position of public enterprises in the machinery of government, i.e., their links with government.

The main point of discussion is well known and is summed up by an authority already quoted, who points to the need for a uniform legal status that would guarantee the autonomy of public enterprises with respect to the government bureaucracy and at the same time make effective control of the enterprises possible.<sup>26</sup>

When the subject is analysed, the inquirer is struck by the effects and the importance of the sector's enormous diversity in respect both of operations and of legal form, which means that there must be different formulas for management or State control in each case and, as a result, different formulas for their integration in the public sector.

As is stated in a specialized document, in this variety of situations a continuum can be observed in which turbulent interrelationships predominate, at one end of which are the enterprises subjected to the numerous conflicting pressures exerted by the various components of the central guiding nucleus, to many regulatory measures which have a paralysing effect and to ambiguous power relationships. At the other extreme are the enterprises which maintain univocal power relationships with some components of the nucleus, generally the Office of the President, relations which are similar to those of a feudal lord with a king.<sup>27</sup>

The other aspect to be discussed is the place of public enterprises in the planning process and machinery. As is observed in a recent study, the practice has been to treat the econ-

omy more or less from a sectoral/technological angle, and it is not often that an institutional conception of public sector participation is observed. Thus, although the plans refer to many State activities, for which targets are fixed and funds assigned, especially those connected with the creation of capital and the production of commonly used inputs, they always do so from the point of view of the sector and productive activity, and not from the institutional angle that defines the scope of the public sector and takes account of the characteristics that are peculiar to it.<sup>28</sup>

The problem is particularly clear in the light of what was said above about the areas of State control or State dominion. Obviously, if the responsibilities and decisions of the central government and of the public enterprises are to be considered separately and as a whole, it is first necessary to define the field which can best be governed by economic policy—a field in which, as has been seen, a high proportion of total investment is made.

Moreover, a rough definition of this kind might help to specify and distinguish instruments that are suitable for implementing and promoting the planning directives in the public enterprises sector, where the government is dominant, and in the others (the sphere of private enterprise) where its influence is more indirect.

### 2. *Internal organization of the public enterprises sector*

A third subject that should be considered is the internal organization of the public enterprises sector, which may be seen as the counterpart or complement of their organic incorporation in the public sector. As will be shown, these two aspects are closely interrelated, and it could even be said that the solution of the first problem might be a decisive step towards the solution of the second.

Despite attempts to regulate operations in the private enterprise sector (or in some parts of it) through a central development agency, the enterprises are usually widely scattered and without connecting links. For the reasons already given, the sector is more like an archipelago than a solid mass.

There seems to be general agreement that the situation has many disadvantages and could

<sup>26</sup> A. Días Leite, *Empresa pública e desenvolvimento econômico*, op. cit.

<sup>27</sup> See "Interrelationships between public enterprises and the central government: their implications for performance" (ST/ECLA/CONF.35/L.2), paper presented by the ECLA Public Administration Unit to the Meeting of Experts on Administration of Public Enterprises mentioned in foot-note 24.

<sup>28</sup> See Ricardo Cibotti and Enrique Sierra, *El sector público en la planificación del desarrollo*, *Textos del Instituto Latinoamericano de Planificación Económica y Social* (México, Editorial Siglo XXI, 1970).

be improved by greater internal co-ordination or integration. Naturally, this does not only, or necessarily, mean clumping all the various units together under some higher authority. A far more realistic approach would undoubtedly be to adopt one of the various methods of integrating more or less similar enterprises, though it would always be useful, in principle, to have a common centre linked with the government or the planning authority.

None of this, of course, would entail interference in the actual administration of the individual units; basically, it would merely mean the adoption of a concerted plan of action and common standards in certain areas of fundamental importance.

One of these areas might be the handling of the sector's current resources. An interesting possibility along these lines would be the creation of one central government account for public enterprise funds so as to promote greater concentration of resources and greater flexibility in their use. Under this system, which few Latin American countries have so far adopted, the cash receipts of all centralized and decentralized public institutions must be deposited in current bank accounts forming part of a single or central account administered by the Ministry of Finance. Consequently, the balance in the central account is equal to the sum of the balances in all subsidiary accounts, and the Ministry can draw on a certain percentage of the accumulated total. In Chile, where the system has been operating since 1959, the Ministry may draw up to 70 per cent. Both central and subsidiary accounts are with the Banco del Estado.

The obvious advantage of a central government account is that better use can be made of the public funds, since it prevents the kind of situation where, while an excess of income over expenditure is generating large surplus cash reserves in one enterprise, another is obliged to cut back its spending because its earnings are insufficient. It is important for the State to be able to transfer resources from enterprises with surpluses to those showing a deficit in two cases: first, to deal with any seasonal fluctuations in the income and expenditure of public institutions and, secondly, in cases where an enterprise is permanently, or for long periods, generating substantial cash surpluses. This, for instance, has been precisely the situation of Chile's Empresa Nacional de Petróleos for many years.

The point should, however, be made that two fundamental conditions must be fulfilled

if the central government account system is to work efficiently. First, a certain amount of programming is necessary to indicate the probable trend of the enterprises' cash balances, so that estimates can also be made—even if only roughly and in accordance with the country's monetary policy—of the percentage of the combined balance on the central account to be drawn upon by the Ministry of Finance. Secondly, the commercial banks should not be allowed to use increases in the central government account reserves as a backing for larger loans to the private sector, since this would diminish the flexibility with which the account can be used in the context of the over-all monetary programme.

The opposite situation arises under the system of water-tight compartments, sometimes based on a variety of different "funds" (Public Works Fund, Housing Fund, etc.) where there is no possibility of transferring resources from one compartment to another, even on a temporary basis. A case in point is the operation of National Housing Fund (Fondo Nacional de la Vivienda) in Uruguay in 1970. Established in 1969 and mainly financed out of a tax on wages and salaries, this Fund, which was to have started to develop a housing construction programme, last year accumulated unused reserves amounting to nearly 10 million dollars in value (about one eighth of Uruguay's total direct public investment), which were left lying in banks and were one of the main reasons for the shrinkage in the amount of money in circulation during that period. At the same time, other priority sectors, such as transport, were suffering from an acute shortage of government funds which prevented enough money being invested to meet the country's needs.

### 3. *Integration for other purposes*

The opportunities outlined above may also arise in other more important spheres, which were dealt with in the section on the influence of the public sector.

For example, prospects would obviously be brighter if various forms of internal integration were applied to such fields as the promotion of local capital goods industries, capital goods import policies, and the adaptation and development of technology. Naturally, whatever the present importance and, above all, the future potential of the principal public enterprises—even if they operate independently—would substantially increase if procedures and instruments were established to co-ordinate policy.

By and large, the various stages of this process and the methods employed closely resemble what has occurred in certain countries at the centre as a result of the emergence of conglomerates and the subsequent decline in the importance of the old kind of monopoly or oligopoly. As in the case of conglomerates, the fundamental factor in the association or co-ordination of separate public enterprises is the existence and operation of a pool or joint fund of current and investment resources, administrative talent, and opportunities for developing and assimilating technological innovations.

This is not, of course, to advocate the creation of one vast public conglomerate. All that is intended here is to point out that the trend is towards a greater co-ordination of Government enterprises, under any number of forms.

#### 4. *Function of the public enterprise sector*

There are two fundamentally different approaches to the sector's role and to its relations with private enterprise. According to one school of thought, the public enterprise sector is merely an extension of the State's traditional responsibilities, dictated by circumstances, which does not affect the basic division into public and private sector. Seen in this light, the sector's legitimate activities would be to build up the infrastructure and other basic services so as to improve the performance of private enterprises. Moreover, when the State, for imperative reasons, must go further than this, such a situation is regarded as essentially transitory, pending the reversion to the private sector of any activities that play more than a supporting role. According to the other school of thought, the public enterprise sector should have broader and more autonomous function, namely, that of becoming (in association with the central government) the motive force behind the expansion and orientation of the development process.

It is not for the writer of this article to take sides. The situation as it stands in Latin America today presents a whole range of experiments in this field, with different methods, a different emphasis, and with more or less lasting results, according to the case. One point that must be made, however, is that, whatever the dominant approach may be, policy towards the sector must be faithful to, and consistent with, the formulation adopted, since ambiguities and contradictions in the decision-making process may be far more harmful and have more far-reaching consequences than a leaning in one direction or the other.

#### 5. *Expansion and diversification of State activities*

The question that has just been discussed is obviously bound up with another: the conflicting views about the expansion and diversification of the public enterprise sector, which are the reflection of the broad attitudes or schools of thought outlined in the previous section. For those that do not hold the traditional view, a move in the direction either of expansion or of diversification, apart from other justifications, would have the advantage of extending government operations to more profitable activities than in the past.

Here, even more than before, it is impossible to be absolutely objective or strictly technical about the situation. The fact is that very few attempts have been made to do so and that the more traditional kind of approach is far more common. One exception to this rule is the study previously mentioned, which endeavours to draw a distinction between enterprises constituting the "nucleus of economic expansion" that it refers to, which must be government-run, and those intended or more suitable for private management. The author of this study points out that the industries composing the nucleus of economic expansion utilize a limited range of technology, with few innovations. Their range of activity is relatively limited: certain services, electric energy, two or three kinds of coal and a few dozen petroleum, common steel and iron products. These sectors are assured of fairly easy access to the vast range of international know-how, either by ordering models, designs and specifications or through technical assistance.

The industries in the second group, the author continues, are more numerous and produce every kind of article. Most of them employ a wide range of constantly evolving know-how, often bound up with processes and equipment which are covered by patents or involve facilities that are the exclusive property of international enterprises. In some cases, these innovations can only be introduced into the national economy by allowing the foreign enterprises that are the only possessors of the know-how into the country, while in others, it entails the signing of sharing agreements between the foreign and the national enterprises.<sup>29</sup>

A number of objections, can however, be levelled against these views on the allocation of functions, and not only on political and ideolog-

<sup>29</sup> A. Días Leite, *Empresa pública e desenvolvimento econômico*, op. cit.

ical grounds but also for a more important and less debatable reason namely, the fact that the framework and functions of the private and public sectors also have their historical dimension, that is to say that they change over time and according to circumstances or the stage of social development. To understand the situation properly, then, it may be more useful to take into account the major changes that have occurred and their possible implications.

Looking at the problem from this angle, it would, for example, be helpful to bear in mind that, under the new or existing conditions of economic development in Latin America, the traditional idea of conflict between the public and the private sector ceases to have any meaning in many cases. This is due to the fact that from the frequently—and especially

in connexion with certain important basic industries that are leaders in technological progress—the real choice is between public or semi-public enterprises and foreign or international enterprises. At the same time, there is the obvious fact that, in many Latin American countries, the expansion and diversification of the State enterprise sector—far from being an obstacle to private enterprise or competing against it—has definitely had the effect of helping the private sector to extend its operations.

Of course, this does not mean that the various problems inherent in the management of public enterprises should be overlooked; these are amply illustrated by the discussions that have taken place both in industrialized market economy countries and in socialist or centrally planned economies.

## ARGENTINA: OPERATION OF THE LARGEST

(Millions)

	Current income		Current expenditure		
	Sales	Total	Wages and salaries	Inputs	Total
<i>Manufacturing</i>					
Industrias Mecánicas del Estado (IME) .....	10,298.4	10,563.5	1,917.6	8,339.5	10,317.6
Talleres de Reparaciones Navales (TARENA) .....	958.9	1,050.2	708.5	307.1	1,070.0
Astilleros y Fábricas Navales del Estado (AFNE) .....	4,319.0	4,681.0	1,815.0	2,375.0	4,190.0
Dirección Nacional de Industrias Estatales .....	4,009.1	5,085.2	1,342.8	1,971.0	3,874.6
Sociedad Mixta Siderurgia Argentina	69,765.5	72,226.7	...	...	57,684.3
<i>Mining</i>					
Yacimientos Petrolíferos Fiscales ....	214,137.0	214,137.0	37,867.0	105,648.0	148,352.0
Gas del Estado .....	53,598.0	54,697.0	10,189.0	24,470.0	45,750.0
Yacimientos Carboníferos Fiscales ...	2,230.6	2,593.3	2,282.4	2,894.0	5,589.8
<i>Transport and related activities</i>					
Empresa Líneas Marítimas Argentinas (ELMA) .....	22,177.1	22,386.6	7,763.5	13,580.5	22,331.9
Empresa Flota Fluvial del Estado Argentino (EFFDEA) .....	5,964.8	6,228.3	3,951.6	2,715.0	7,224.4
Administración General de Puertos ..	7,063.5	7,217.3	3,710.1	1,477.9	5,253.2
Transportes de Buenos Aires .....	409.0	409.0	79.5	65.5	288.2
Empresa de Ferrocarriles Argentinos	80,630.0	83,300.0	86,270.0	25,060.0	119,310.0
Subterráneos de Buenos Aires .....	3,051.5	3,051.5	2,381.8	760.0	3,201.4
Aerolíneas Argentinas .....	24,019.0	24,523.0	8,380.0	14,810.0	25,260.0
Empresa Nacional de Telecomunicaciones .....	48,066.6	52,869.5	24,395.3	5,769.6	33,344.6
Agua y Energía Eléctrica .....	38,260.0	38,718.1	12,436.3	11,568.8	25,019.3
Servicios Eléctricos del Gran Buenos Aires .....	...	...	...	...	...

SOURCE: Secretaría de Estado de Hacienda, Dirección Nacional de Programación Presupuestaria, *Desarrollo de Egresos del Estado, año 1969. Informe al Cuarto Trimestre*, Buenos Aires, March 1970.

<sup>a</sup> Difference between income from sales of goods and services, and expenditure on wages and salaries, social security, purchase of raw materials, equipment, services and interest payments. Only income from sales was considered so as to eliminate subsidies and

*nex*

A

PUBLIC ENTERPRISES; FINANCIAL RESULTS, 1969

(in pesos)

Operating surplus <sup>a</sup>	Capital expenditure				Capital income		
	Fixed investment	Other investment <sup>b</sup>	Amortization	Total	Over-all surplus	Loans	Other
-19.2	59.0	—	—	59.0	245.9	—	14.8
-111.1	289.8	—	16.0	305.8	-19.8	47.9	45.8
129.0	324.0	—	—	324.0	491.0	—	—
375.8	335.2	982.0	64.0	1,381.2	1,210.6	179.8	198.5
12,081.2	7,048.5	15,180.0	1,262.9	23,491.4	14,542.4	...	411.9
65,785.0	67,890.0	14.0	12,922.0	80,826.0	65,785.0	2,356.0	—
7,848.0	15,695.0	—	13,444.0	29,139.0	8,947.0	14,644.0	—
-3,359.2	814.4	441.5	215.7	1,483.4	2,996.5	—	36.4
-115.3	2,720.0	—	698.6	3,832.6	54.7	—	212.3
-1,259.6	25.6	—	323.3	348.9	-996.1	—	206.7
1,860.3	1,325.6	—	52.1	1,377.7	1,964.1	—	13.4
120.8	—	—	26.1	26.1	120.8	—	—
-33,590.0	17,000.0 <sup>c</sup>	—	20,000.0 <sup>c</sup>	37,000.0	-36,010.0	7,000.0 <sup>c</sup>	800.0 <sup>c</sup>
-149.9	595.6	—	267.5	863.1	-149.9	—	30.9
-271.0	355.5	600.0	3,634.1	4,589.6	-737.0	—	75.7
17,735.1	24,600.4	—	—	24,600.4	19,542.9	933.5	494.2
13,277.5	26,380.9	1,175.1	2,755.4	30,625.7	13,698.8	3,960.6	1,463.0
...	27,745.0	-613.0	7,726.0	34,858.0	215.5	13,307.0 <sup>d</sup>	—

other current transfers that might distort the results for the actual operation of the enterprise.

<sup>b</sup> Purchase of capital goods, financial investment and increases on stocks.

<sup>c</sup> Estimates, based on data from various sources.

<sup>d</sup> Includes 288 million pesos in the form of government contributions.

**Table B, Part I**  
**BRAZIL: CONSOLIDATED ACCOUNTS OF SELECTED PUBLIC ENTERPRISES, BY SECTOR, 1960 AND 1965**  
*(Millions of new cruzeiros)*

Sector <sup>a</sup>	Year	Current income		Current expenditure			Operating surplus <sup>d</sup>	Other income <sup>e</sup>	Fixed investment	Financial investment	Total capital expenditure <sup>f</sup>
		Operating income	Total <sup>b</sup>	Wages and salaries <sup>c</sup>	Inputs	Total					
Mining .....	1960	10.2	10.3	2.5	...	7.5	2.7	—	3.4	0.2	4.2
	1965	204.1	204.2	42.3	30.6	106.7	97.4	—	49.7	1.7	58.6
Steel .....	1960	30.5	30.8	4.3	11.7	25.0	5.5	—	8.2	0.5	13.2
	1965	415.1	426.1	104.2	105.2	372.8	42.3	—	406.6	4.6	465.6
Chemicals and petroleum ..	1960	54.3	56.5	5.0	16.7	45.4	8.9	0.2	20.6	...	23.9
	1965	1,877.7	1,901.3	206.1	518.5	1,734.7	143.0	0.3	179.7	0.2	235.2
Manufacturing and other ..	1960	5.4	6.4	2.0	2.7	6.4	-1.0	—	1.7	—	3.1
	1965	54.3	76.8	25.0	23.0	63.9	-9.6	—	5.6	0.1	15.4
Electrical energy .....	1960	0.6	0.7	0.1	0.1	0.3	0.3	—	7.0	0.2	7.9
	1965	122.6	137.2	5.9	8.0	70.0	52.6	—	112.1	316.4	428.4
Transport .....	1960	26.5	29.1	29.7	10.6	57.5	-31.0	21.5	7.1	—	10.3
	1965	345.3	393.8	418.8	106.8	757.8	-412.5	360.7	79.7	0.2	77.7
Communications .....	1960	2.4	11.0	7.6	0.4	11.0	-8.6	—	0.8	—	...
	1965	32.0	148.6	110.5	2.3	115.9	-83.9	—	13.1	—	...
Supplies .....	1960	...	...	...	...	...	...	...	...	...	...
	1965	7.5	9.7	3.2	0.2	6.3	1.2	—	1.8	—	-4.9

SOURCE: Fundação Getúlio Vargas, Instituto Brasileiro de Economia.

<sup>a</sup> See attached list of the enterprises considered in each sector.

<sup>b</sup> Excluding contributions and subsidies, which appear under "Other income".

<sup>c</sup> Including social security contributions.

<sup>d</sup> Difference between income from operations and total current

expenditure. It was not possible to separate operating from other expenditure in the latter figure.

<sup>e</sup> Contributions and subsidies received under the head of current income.

<sup>f</sup> Includes, in addition to fixed and financial investment, changes in stocks, which in 1965 had a negative sign in electric energy, transport and supplies.

**Table B, Part II**  
**BRAZIL: LARGEST PUBLIC ENTERPRISES, BY SECTOR**

<i>Mining and steel</i>	<i>Manufacturing and other</i>	<i>Transport and communications</i> (continued)
Companhia de Aços Especiais Itabira	Fábrica Nacional de Motores	Companhia Nacional de Navegação Costeira
Companhia Ferro e Aço de Vitória S.A.	Empresas del Patrimonio Nacional	Serviços Transporte Baía de Guanabara
Companhia Siderúrgica Nacional	Companhias Usinas Nacionais	Zona Franca de Manaus
Companhia Siderúrgica Paulista		
Companhia Vale do Rio Doce	<i>Transport and communications</i>	<i>Electric energy</i>
Usinas Siderúrgicas de Minas Gerais S.A.	Rede Ferroviaria Federal	Centrais Elétricas Brasileiras
	Loide Brasileiro	Central Elétrica de Furnas
<i>Chemical</i>	Administração do Porto do Rio de Janeiro	Companhia Electricidade do Amapá
Companhia Nacional de Alcalis	Serviço de Navegação da Bacia do Prata	Companhia Hidroelétrica de São Francisco
Petróleo Brasileiro S.A.	Serviço de Navegação da Amazonia	Companhia Hidroelétrica Vale du Paraíba
<i>Food supply</i>	Serviço de Navegação do Porto de Pará	Termoelétrica de Charqueadas S.A.
Companhia Brasileira de Alimentos		
Companhia Brasileira de Armazenagem		
Frigoríficos Nacionales		

Table  
COLOMBIA: OPERATION OF THE LARGEST  
(Thousands)

	Operating income <sup>a</sup>	Current expenditure			Operating surplus
		Wages and salaries <sup>b</sup>	Purchase of materials	Total <sup>c</sup>	
<i>Manufacturing</i>					
Empresa Colombiana de Productos Veterinarios .....	15,973	3,571	1,295	5,690	10,283
Cementos Boyacá S.A. ....	39,418	8,386	9,928	29,781	9,637
Industria de Concreto "INCO" Ltda. ...	1,435	410	763	1,246	189
Empresa Colombiana de Petróleos .....	1,306,409	220,876	128,584	1,059,803	246,606
<i>Transport and communications</i>					
Compañía Nacional de Navegación .....	12,951	4,152	3,183	13,348	-397
Empresa Puertos de Colombia .....	346,538	235,321	5,067	262,500	84,038
Corporación Industrial Aeronáutica ...	2,514	2,090	1,030	4,036	-1,522
Empresa Colombiana de Aeródromos ...	39,050	32,253	—	41,747	-2,697
Ferrocarriles Nacionales .....	333,880	278,524	94,428	400,444	-66,564
Empresa Nacional de Telecomunicaciones	459,598	240,485	23,884	311,635	147,963
Instituto Colombiano de Energía Eléctrica <sup>d</sup>	1,287	5,957	521	9,791	-8,504
Instituto de Mercadeo Agropecuario <sup>e</sup> ...	699,476 <sup>h</sup>	58,890	1,672	76,253	623,223

SOURCE: Contraloría General de la República, *Informe Financiero de 1968*.

<sup>a</sup> Income from sales of goods, products and services only.

<sup>b</sup> All expenditure on wages and salaries, social security and other special allowances.

<sup>c</sup> Only purchase of materials and supplies was considered.

<sup>d</sup> In addition to wages and salaries and purchase of materials, includes the general expenses of the enterprise, except depreciation, and interest payments.

<sup>e</sup> Income and expenditure that could not be placed under any other heading: income includes current income, rents, reimbursements and other capita

C

## PUBLIC ENTERPRISES; FINANCIAL RESULTS, 1968

(of pesos)

Contributions	Other items				Capital expenditure			
	Loans	Transfers	Other income <sup>a</sup>	Total	Direct investment	Financial investment	Amortization	Total
20,625	—	-782	780	20,623	18,207	—	340	18,547
—	—	-237	-3,262	-3,499	...	...	...	...
—	—	-19	58	39	55	—	...	55
—	83,350	-30,794	181,296	233,852	452,868	98,160	30,631	581,659
1,000	...	-364	4,188	4,824	...	...	...	...
10,000	46,099	-1,958	6,285	60,426	100,032	—	47,810	147,842
1,000	1,800	—	1,990	4,790	...	1,319	525	1,844
111,706	25,846	-2,155	103	135,500	112,791	—	17,125	129,916
170,342	118,927	-13,830	-45,235	230,204	194,684	—	22,591	217,275
48,620	21,000	-109,794	11,242	-28,932	33,682	5,254	76,180	115,116
231,189	358,503	-815	22,230	611,107	765,385	12,615	32,592	810,592
17,610	170,811	-5,752	8,238	190,907	887,758	10,098	—	897,856

resources, etc.; expenditure includes depreciation and interest payments.

<sup>a</sup> The Instituto de Energía Eléctrica does not produce energy, but carries out studies, builds irrigation, drainage and hydraulic works for electrification purposes and constructs hydro- and thermo-electric plants.

<sup>s</sup> This Institute is responsible mainly for regulating foreign trade in agricultural products and controlling the prices of those products on the national markets through the regulation of supply and the accumulation of stocks.

<sup>h</sup> Includes 631,767,000 pesos for sales of goods which is not justified or explained by any opposite entries under operating expenses.

Table  
CHILE: OPERATION OF THE LARGEST  
(Millions)

	<i>Current income</i>		<i>Current expenditure</i>		
	<i>Sales</i>	<i>Total<sup>a</sup></i>	<i>Wages and salaries<sup>b</sup></i>	<i>Inputs</i>	<i>Total<sup>c</sup></i>
<i>Transport and communications</i>					
Empresa Portuaria .....	113.7	124.8	119.2	32.5	153.3
Empresa Marítima del Estado .....	29.3	49.8	26.0	41.1	67.1
Línea Aérea Nacional .....	139.6	175.8	64.2	90.0	186.5
Ferrocarriles del Estado .....	313.8	378.0	457.8	177.7	663.1
Empresa de Transportes Colectivos del Estado .....	46.9	51.5	54.9	36.2	91.1
Empresa Nacional de Telecomunicaciones	33.1	34.2	9.7	9.1	23.7
<i>Industry</i>					
Industria Azucarera Nacional (IANSA)	237.3	253.4	35.4	195.8	256.5
Astilleros Marítimos del Estado (ASMAR) .....	59.4	60.6	53.1	13.5	66.6
Fábrica de Materiales del Ejército (FAMAE) .....	22.0	22.3	13.6	12.4	27.0
Compañía de Acero del Pacífico (CAP) <sup>d</sup>	1,046.4	1,058.5	...	...	820.4
<i>Mining</i>					
Empresa Nacional de Minería (ENAMI)	521.4	527.9	67.7	400.6	480.1
<i>Energy and fuel</i>					
Empresa Nacional de Electricidad (ENDESA) .....	276.8	280.1	59.3	58.4	178.7
Empresa Nacional de Petróleo (ENAP)	828.0	828.1	85.8	346.0	431.8
Petroquímica Chilena S.A. ....	—	—	—	—	—
<i>Commerce</i>					
Empresa de Comercio Agrícola (ECA)	99.5	102.2	31.6	14.2	180.2
<i>Services</i>					
Empresa de Agua Potable .....	74.6	79.0	29.1	12.9	43.1

SOURCE: Ministerio de Hacienda, Dirección de Presupuestos, *Balance Consolidado del Sector Público de Chile, año 1968 y período 1964-1968*, Santiago, Chile, 1970.

<sup>a</sup> Apart from sales, includes investment income, income under special laws, etc.

<sup>b</sup> Including social security payments.

<sup>c</sup> Including also interest on the public debt and other current expenditure, except transfer payments

<sup>d</sup> Capital formation, purchase of assets and financial investment.

## D

## PUBLIC ENTERPRISES; FINANCIAL RESULTS, 1968

(of escudos)

Capital expenditure			Operating surplus	Financing		Net transfers <sup>g</sup>	Other income <sup>h</sup>
Investment <sup>d</sup>	Amortization of public debt	Total <sup>e</sup>		Government contribution <sup>f</sup>	Loans		
7.9	—	8.3	-28.5	55.1	—	-3.6	-14.7
6.1	—	6.3	-17.3	24.1	—	—	-0.5
178.5	25.4	203.9	-10.7	40.2	177.6	-9.3	6.1
132.7	0.6	133.3	-285.1	337.4	26.4	26.3	28.3
2.9	—	3.1	-39.6	43.8	—	-0.3	-0.8
22.9	2.7	43.8	10.5	28.9	5.0	—	-0.6
15.2	0.6	15.8	-3.1	34.8	21.7	-36.6	-1.0
8.0	—	8.0	-6.0	21.1	—	-5.9	-1.2
2.0	—	-2.1	-4.7	8.2	1.2	-2.4	-0.2
71.0	...	...	238.1	...	...	...	...
46.6	107.9	154.7	47.8	72.6	33.1	-11.1	12.3
360.1	—	387.1	101.4	137.6	96.2	55.7	-3.8
203.1	40.2	255.2	396.3	—	29.9	-57.9	-113.1
23.9	—	28.2	—	7.9	7.5	12.5	0.3
10.8	3.1	13.9	-78.0	56.6	37.0	-7.1	5.4
27.4	1.1	28.5	35.9	1.4	1.7	-11.9	1.4

<sup>e</sup> Including other capital expenditure.

<sup>f</sup> Including both current and capital contributions from the Government.

<sup>g</sup> Including current contributions by other institutions, of which only that the Ferrocarriles del Estado

is of any size, current transfers to the private sector and current and capital transfers to the public sector.

<sup>h</sup> Variations in cash reserves, sale of assets, self-generated income and other income.

<sup>i</sup> Partial information from the report of the enterprise for the financial year 1968-1969.

**Table E**  
**MEXICO: LARGEST PUBLIC ENTERPRISES, BY SECTOR, 1968**

	<i>Capital stock (millions of pesos)</i>	<i>Proportion of State ownership (percentage)</i>
<i>Mining</i>		
Compañía Minera de Guadalupe S.A. <sup>a</sup> .....	12.0	...
Compañía Minera La Florida de Muzquiz S.A. <sup>a</sup> .....	5.0	...
La Perla, Minas de Fierro S.A. <sup>a</sup> .....	40.0	100
Mexicana de Coque y Derivados S.A. <sup>b</sup> .....	70.0	c
<i>Petroleum</i>		
Petróleos Mexicanos .....	...	...
Diesel Nacional S.A. <sup>b</sup> .....	250.0	100
<i>Manufacturing</i>		
Industria Petroquímica Nacional S.A. ....	100.6	100
Tetrateld de México S.A. <sup>d</sup> .....	50.0	c
Altos Hornos de México S.A. ....	600.0	...
Compañía Industrial de Atenquique .....	70.0	...
Compañía Industrial de Ayotlab .....	17.0	c
Constructora Nacional de Carros de Ferrocarril S.A. ...	80.0	96
Chapas y Triplay S.A. <sup>b</sup> .....	2.0	c
Empacadora Ejidal .....	2.5	96
Zincamex S.A. ....	63.5	100
Fábricas de Papel Tuxtepec S.A. ....	160.0	c
Compañía Real del Monte y Pachuca .....	10.6	100
Fertilizantes del Istmo S.A. <sup>b</sup> .....	270.0	c
Guanos y Fertilizantes de México S.A. ....	10.0	51
Henequen del Pacífico S.A. ....	0.6	83
Hules Mexicanos S.A. ....	87.5	60
Industrial de Abastos S.A. ....	60.0	51
Industrial Eléctrica Mexicana S.A. ....	12.0	100
Ingenio Independencia S.A. <sup>b</sup> .....	25.0	c
Ingenio Rosales S.A. ....	65.0	...
Ingenio San Francisco El Naranjal S.A. <sup>b</sup> .....	50.0	c
Maderas Industriales de Quintanardo S.A. <sup>b</sup> .....	8.0	100
Maíz Industrializado S.A. <sup>b</sup> .....	19.6	100
Operadora Textil S.A. <sup>b</sup> .....	10.0	c
Productora e Importadora de Papel S.A. ....	7.5	60
Siderúrgica Nacional S.A. ....	100.0	c
Sociedad Cooperativa de Vestuario y Equipo S.A. ....	1.3	...
Talleres Gráficos de la Nación .....	...	...
Talleres Tipográficos Nacionales .....	20.0	100
Inmobiliaria Bamfoco S.A. ....	6.7	c
Instalaciones Inmobiliarias para Industrias S.A. <sup>d</sup> .....	10.0	100
<i>Transport and related activities</i>		
Aeronaves de México S.A. ....	128.0	49
Aeropuertos y Servicios Auxiliares .....	...	...
Caminos y Puentes Federales de Ingresos .....	...	...
Ferrocarriles de Chihuahua al Pacífico .....	127.1	100
Ferrocarril del Pacífico S.A. ....	...	...

Table E (continued)

	Capital stock (millions of pesos)	Proportion of State ownership (percentage)
Ferrocarriles Nacionales de México .....	...	...
Ferrocarriles Unidos de Yucatán .....	23.0	100
Servicios de Transportes Eléctricos .....	...	...
Comisión Federal de Electricidad .....	...	...
Compañía de Luz y Fuerza del Centro S.A. <sup>e</sup> .....	1,000.0	100
Compañía Hidroeléctrica Occidental .....	0.65	83
Almacenes Nacionales de Depósito S.A. ....	500.0	50
Conasupo S.A. ....	80.0	100
<i>Agriculture</i>		
Beneficios Mexicanos del Café S.R.L. ....	1.2	100
Unión Forestal de Jalisco y Colima S.A. <sup>f</sup> .....	40.0	100
<i>Commerce</i>		
Compañía Operadora de Teatros S.A. ....	92.0	100

SOURCE: Secretaría de la Presidencia, Dirección General de Inversiones Públicas.

<sup>a</sup> The shares are owned by Altos Hornos de México S.A.

<sup>b</sup> The shares are owned by Nacional Financiera S.A.

<sup>c</sup> The State has interest.

<sup>d</sup> The shares are owned by Petróleos Mexicanos.

<sup>e</sup> The shares are owned by the Comisión Federal de Electricidad.

<sup>f</sup> The shares are owned by the Compañía Industrial de Atenquique.

Table F follows

**Table F**  
**DOMINICAN REPUBLIC: LARGEST PUBLIC ENTERPRISES, BY SECTOR, 1968**

(Thousands of pesos)

<i>Enterprises of the State Enterprises Corporation (Corporación Dominicana de Empresas Estatales — CORDE)</i>	<i>Authorized capital stock (1967)</i>	<i>Proportion of State ownership (percentage)</i>	<i>Labour force (June 1967)</i>	<i>Expendi- ture on raw ma- terials (1966)</i>	<i>Income from sales (1966)</i>	<i>Net profits</i>
<i>Mining</i>						
Minas de Sal y Yeso .....	1,060	100	246	...	769.3	-730.1
Falcombridge Dominicana .....	20,000	10	...	...	...	...
<i>Petroleum</i>						
Petrolera Dominicana .....	3,000	33	...	...	...	...
<i>Manufacturing</i>						
Dominicana Industria de Cal- zados .....	250	100	127	198.0	595.6	75.0
Fábrica de Aceites Vegetales ..	462	100	80	308.1	498.8	-104.2
Sacos y Tejidos Dominicanos (FASACO) .....	1,425	100	266	484.7	1,741.0	47.2
Sacos y Tejidos Dominicanos (Textil) .....	6,000	100	560	2,495.1	1,502.2	-937.5
Sisal Dominicano .....	1,000	100	...	...	...	...
Tenería FA-2 .....	300	100	40	56.4	126.5	-70.5
C.A. Tabacalera .....	4,000	72	455	2,738.0	17,402.9	647.5
Chocolatera Industrial .....	3,100	93	151	...	47.0	-6.0
Fábrica Dominicana de Cemen- tos .....	12,000	73	551	500.7	6,287.8	847.0
Fábrica Dominicana de Discos	50	97	7	3.7	16.6	-10.5
Industria Licorera La Altagracia	150	87	33	50.7	105.3	-75.0
Industria Nacional de Papel ..	5,000	87	231	1,111.1	2,651.1	45.5
Pinturas Dominicanas .....	900	82	171	709.1	2,160.4	242.1
Industrial Lechera .....	400	96	53	309.8	389.1	-195.8
Molinos Dominicanos .....	4,000	66	232	5,074.8	10,871.7	740.3
Refinería Desal .....	46	100	31	13.5	...	-43.1
Industria Nacional del Vidrio ..	5,000	92	169	...	2,660.9	606.9
Nacional de Construcciones ...	1,000	44	...	...	...	...
Sociedad Industrial Dominicana	3,000	47	...	...	...	...
Ropas y Tejidos Dominicanos	400	24	...	...	...	...
Mezcla Lista C.A. ....	500	18	...	...	...	...
Industria de Asbesto Cemento ..	1,000	43	...	...	...	...
Industrias Nijua .....	1,250	28	...	...	...	...
Industria de Plásticos .....	500	4	...	...	...	...
Laboratorio Químico Domini- cano .....	470	18	...	...	...	...
Fábrica de Baterías Dominicana	100	26	...	126.7	234.1	14.5
Planta de Recauchado .....	300	41	...	99.6	296.5	-32.2
<i>Commerce</i>						
Atlas Commercial Company ..	2,500	84	91	...	1,514.7	-117.9
Caribbean Motors .....	2,000	72	111	...	1,323.6	-142.3
Dominican Motors .....	1,200	68	47	...	606.0	-112.2
Ferretería El Marino .....	60	75	9	...	31.8	-38.5

Table F (continued)

<i>Enterprises of the State Enterprises Corporation (Corporación Dominicana de Empresas Estatales — CORDE)</i>	<i>Authorized capital stock (1967)</i>	<i>Proportion of State ownership (percentage)</i>	<i>Labour force (June 1967)</i>	<i>Expendi- ture on raw ma- terials (1966)</i>	<i>Income from sales (1966)</i>	<i>Net profits</i>	
Ferretería Read .....	1,000	62	42	...	501.9	-135.1	
Sociedad Inmobiliaria .....	2,500	100	10	...	135.7	18.0	
San Rafael .....	400	32	...	...	2,291.5	229.8	
Comercial Dominicana .....	150	13	...	...	...	...	
Equipos de Construcción .....	1,000	36	...	...	...	...	
Fomento Industrial, Mercantil y Agrícola .....	1,500	12	...	...	...	...	
Radio Hin .....	150	12	...	...	...	...	
<i>Transport</i>							
Dominicana de Aviación .....	830	100	202	...	2,144.0	-328.0	
<i>Agriculture</i>							
Consorcio Algodonero .....	1,000	100	811	...	417.9	-2,077.2	
<i>Other State enterprises (1969)</i>	<i>Capital stock</i>	<i>Operating income</i>	<i>Other income</i>	<i>Total income</i>	<i>Operating costs</i>	<i>Deprecia- tion</i>	<i>Net profits</i>
Corporación Dominicana de Electricidad .....	37,000.0	20,198.7	-98.2 <sup>a</sup>	20,100.5	11,906.8	2,357.2	5,836.4
Corporación Azucarera Dominicana (currently Consejo Estatal de Azúcar) .....	140,000.0	80,274.6	1,644.8	81,919.4	74,360.3	5,420.9	2,138.2
Corporación Hotelera ..	...	...	...	...	...	...	...

SOURCE: Oficina Nacional de Planificación, *Plataforma para el Desarrollo Económico y Social de la República Dominicana* (1968-1985), and balance

sheets of enterprises.

<sup>a</sup>Including operating deficit of Preservadora de Maderas amounting to 100,000 pesos.

**Table G**  
**VENEZUELA: LARGEST PUBLIC ENTERPRISES, BY SECTOR, 1968**  
*(Thousands of bolívares)*

	Year installed	Proportion of State ownership (percent- age)	Capital stock	Income from sales	Net profits <sup>a</sup>
<i>Mining</i>					
Minas de Carbón de Lobatera C.A. ....	1950	...	...	...	...
<i>Petroleum</i>					
Corporación Venezolana del Petróleo .....	1960	100	483,600 <sup>b</sup>	179,072	35,178
Instituto Venezolano de Petroquímica .....	1956	100	975,030 <sup>b</sup>	77,273	-29,418
<i>Manufacturing</i>					
Siderúrgica del Orinoco (CVG) .....	1964	100	1,647,790	418,110	15,523
Centrales Azucareras (CVF) <sup>c</sup> .....	1959	...	100,000	67,608	-4,181
Aluminio del Caroní S.A. (CVG) .....	1967	50	80,000	27,797	-2,120
Cementos Guayana (CVG) .....	1968	25	12,000	...	-11
C.A. Pulpa Guayana (CVG) .....	...	...	...	...	...
Centro Simón Bolívar (CVF) <sup>c</sup> .....	1958	...	460,000	21,294	9,310
Instituto Autónomo de Diques y Astilleros Nacionales .....	1947	100	34,715 <sup>b</sup>	12,391	-1,734
<i>Transport and related activities</i>					
C.A. Venezolana de Navegación (CVF) <sup>c</sup> ...	1959	...	72,305	99,769	5,754
Transportadora Marítima Venezolana C.A. ..	1960	...	...	...	...
Puerto de Hierro S.A. (CVG) .....	...	50	450	2,401	—
Línea Aeropostal Venezolana .....	1958	...	323,625 <sup>b</sup>	51,310	1,314
Venezolana Internacional de Aviación (CVF) <sup>c</sup>	1960	...	32,760	136,187	16,360
Instituto Autónomo de Administración de Ferrocarriles del Estado .....	1946	100	446,384	2,105	-10,502
C.A. Gran Ferrocarril de Tachira .....	1894	...	11,200	...	...
C.A. Nacional Teléfonos de Venezuela .....	1965	100	400,000	287,790 <sup>d</sup>	36,832
Almacenes de Depósitos Agropecuarios C.A.	1962	...	...	...	...
C.A. Administración y Fomento Eléctrico (CVF) <sup>c</sup> .....	1958	...	800,000	237,071	10,207
Electrificación del Caroní (CVG) .....	1963	100	514,000	35,198	20,983
Corporación Nacional de Hoteles y Turismo .	1965	...	90,084	17,734 <sup>d</sup>	-466
C.A. Hotel Guayana (CVG) .....	1967	86	7,146	—	—

SOURCE: Annual reports of the Venezuelan Development Corporation (Corporación Venezolana de Fomento — CVF) and the Venezuelan Corporation for the Development of Guayana (Corporación Venezolana de Guayana — CVG).

<sup>a</sup> Net profits for the financial year given in the

balance sheets of the enterprises before deductions for sales tax, transfers to reserve funds and distribution of profits.

<sup>b</sup> Government capital only.

<sup>c</sup> Figure for 1967.

<sup>d</sup> Budgeted.

## POPULATION TRENDS AND POLICY ALTERNATIVES IN LATIN AMERICA

### 1. Introduction

During the past two decades the rapid growth and geographical redistribution of the population of most Latin American countries have increasingly forced themselves on public attention as problems demanding a more adequate understanding and some kind of policy consistent with over-all development policy and with national conceptions of a viable future social order. Extremely divergent views on the meaning of these phenomena and what should be done about them continue to be advanced, and much of the information that would be needed to verify essential aspects of the different hypotheses continues to be lacking or of dubious reliability. Nevertheless, the prolonged polemics have contributed to a better appreciation of the complexity of the factors involved and the inadequacy of the simply complacent as well as the simply denunciatory approaches. The researches carried out by the Latin American Demographic Centre (CELADE) and by increasing numbers of other institutions and scholars have done a great deal, even in the face of baffling inadequacies in the basic data and a continuing failure on the part of most Governments to allocate adequate resources to the collection of demographic statistics, to clarify present trends and permit trustworthy projections of the future.

In August 1970, the first Latin American Regional Population Conference<sup>1</sup> assembled nearly 200 papers discussing and reporting on research concerning fertility, mortality, migration, urbanization and regional distribution of population; relationships between population and economic and social development, future population trends, population policies, and the state of demographic research and teaching in

<sup>1</sup> Held in Mexico, D.F.; co-sponsored by the International Union for the Scientific Study of Population, the Economic Commission for Latin America, the Latin American Demographic Centre, and the Colegio de México. Titles cited below without references to place and date of publication are papers presented to this Conference.

Latin America. These papers, presenting an extremely wide range of theories, opinions and empirical data, provide a favourable opportunity for an overview of the population question in Latin America, advancing beyond previous studies.<sup>2</sup> The beginning of a new decade, expected to serve as a framework for the formulation of long-term development strategies, makes such an overview particularly necessary. However, the fact that most countries are conducting their decennial censuses in 1970 or 1971 means that it is not worth while to accompany this overview by detailed recent statistics. For the most part, the demographic statistics and projections now at hand derive from the 1960 censuses, and are readily available in other publications.

The following pages will first summarize very briefly the present demographic situation of Latin America, giving particular attention to the likelihood of continuity or important change in the past trends that necessarily serve as bases for statistical projections of the demographic future and to the light thrown on these questions by the preliminary data now becoming available from some of the new censuses. It will then discuss the main social and economic factors that have been identified as exerting a significant influence on population change and that, at the same time, are influenced or constrained by population change. It will here be necessary to cover a wide range of topics on which there is no consensus among authorities. In several instances, it will not be possible to do more than summarize the arguments that have been advanced and express a tentative preference based on ECLA's general diagnosis of development problems and requisites. The crucial question of policy formulation will then be explored. An attempt will be made to summarize objectively the relevant ideological positions. Finally, the need

<sup>2</sup> See *Economic Survey of Latin America 1969* (United Nations publication, Sales No.: E.71.II.G.1), Part One, and *Social Change and Social Development Policy in Latin America* (United Nations publication, Sales No.: E.70.II.G.3), chapt. XVIII.

to give population policy a legitimate and clearly defined place within a long-term development strategy will be confronted with the need to have realistic criteria for what the Governments can justifiably do or refrain from doing while they are still struggling to evolve such a strategy. In population as in all the other areas of public social action, commitments are now being made, programmes are gaining momentum, and pressures are being generated that will not wait until the State is ready and able to integrate them into a comprehensive strategy.

## 2. *The present situation and the foreseeable future*<sup>3</sup>

### (a) *Rates of increase and their determinants*

A country's over-all rate of population increase has three immediate determinants—the rates of fertility, of mortality, and of migration across its borders. For Latin America as a whole, it is generally agreed that the major possible variations and the main incognita as to future population growth as well as age composition depend on the first of these variables.

There is ample room for a further lowering of mortality rates, if these are compared with the rates attained by high-income countries. Future declines are expected to be relatively slow compared with the recent past, but in their effects on over-all rates of increase should be at least sufficient to offset initial declines in fertility.<sup>4</sup> Only a few of the smaller and poorer countries still have the potentiality of very large declines over a period of a few years that produced, for the region as a whole, the rapid acceleration of population growth over the past few decades. Rising mortality rates are not to be expected anywhere unless

<sup>3</sup> For a more detailed discussion of the questions treated in this section and supporting statistics, see *Social Change and Social Development Policy in Latin America*, op. cit., chapter IV, and the papers of the Regional Conference.

<sup>4</sup> For the region as a whole, a decline in the gross death rate from 10.0 in 1965-1970 to 7.0 in 1980-1985 is projected. The expectation of life at birth should rise by 6.5 years between the same periods. Projected trends for individual countries differ widely from the regional average. At one extreme, the gross death rate of Argentina would rise lightly, from 8.6 to 9.0, because of the aging of the population. At the other extreme the Haitian and Bolivian rates, the highest in the region, would decline from 19.7 to 13.7 and from 19.1 to 16.3 respectively. Other countries with present rates far above the regional average are the Dominican Republic, El Salvador, Guatemala, Honduras and Nicaragua.

catastrophes, now unforeseeable, intervene, except in Argentina.

It is highly improbable that international immigration will ever regain the ability to play the important part in quantitative increase that it did in a few Latin American countries in the past. Emigration has present and potential importance only for a few of the small Caribbean countries. The future role of international migration will be mainly qualitative, and will depend on the balance between Latin American ability to attract migrants with needed skills and ability to limit the out-migration of nationals possessing such skills. Unfortunately, the latter current seems likely to predominate. Migration may also be of some importance in changing the balance of population between certain countries within the region, and the progress of economic integration may facilitate population movements between Latin American countries. Even this is questionable, in view of the growing dimensions of structural unemployment in almost all the countries and the resistances that migrations of this kind encounter once they reach a scale large enough to alter significantly the demographic traits of the host country.

Attention thus centres on the future behaviour of fertility, as not only the variable most likely to undergo major change but also the most susceptible to influence by public policies intended to control the rate of population increase. A high proportion of recent demographic research and writing has been devoted to this variable.<sup>5</sup> The extremely youthful age composition resulting from the combination of high fertility and declining mortality in recent years gives an enormous momentum to further population increase, ensuring that crude birth rates will remain high and that the over-all rate of increase might not be affected for some years after the beginning of a decline in fertility rates for women of child-bearing age. According to historical precedents, changes in the reproductive behaviour of women have been slow and gradual, with a few recent exceptions (Japan, Taiwan). Projections of variations in population growth rates using different assumptions concerning fertility trends thus point to the probability of a relatively narrow range of alternatives. According to the low variant used in recent projections made by ECLA and CELADE, the

<sup>5</sup> More than forty of the papers submitted to the Latin American Regional Population Conference dealt with fertility. See, in particular, the conference paper by Walter Mertens, "Fertility and family planning research in Latin America".

population growth rate for Latin America as a whole might drop from 2.83 per cent in 1960-1965 to 2.69 per cent in 1980-1985. According to an intermediate set of assumptions it would rise slightly to 2.91 per cent, and according to a high variant the rate might rise to 3.19 per cent. This would mean total regional populations in 1985 of 411 million, 425 million and 440 million, respectively, compared to 238 million in 1965.<sup>6</sup>

Demographic projections are necessarily based on past trends and on the possibilities for modification of these trends demonstrated by past experience. Demographers are well aware that such trends may not be a reliable guide to the future.<sup>7</sup> Advances in contraceptive techniques, the spread of public and private family planning services, the increasing pervasiveness of the mass communication media, and the drastic changes in social patterns, livelihood, physical environment and consumption stimuli to which most of the Latin American people are now exposed *might*, in some combination as yet undefinable, bring about unprecedentedly rapid change in reproductive

behaviour, and thus in population growth and age distribution. As in the case of mortality in the recent past, technological change and organized public action might make fertility changes much less dependent on the economic and social gains that seem to have been their previous requisites.

It is well known that two countries of the region, Argentina and Uruguay, have not shared in the regional pattern of high fertility and accelerated population increase. In recent decades their demographic patterns have been closer to those of Europe than to those of the remainder of Latin America. Two other countries, Chile and Cuba, are well along the way to moderate fertility and moderate rate of increase. The Chilean birthrate fell from 37.1 per thousand inhabitants in 1963 to 27.8 in 1969. More recently, a few small countries have moved in the same direction. The Costa Rican birth rate, nearly stable at a very high level up to 1963, fell from 45.3 in that year to 34.5 in 1969. Panama shows a smaller drop from 41.0 in 1960 to 38.0 in 1969. The English-speaking countries of the Caribbean all show significant downward trends during the 1960s.

In Brazil, national vital statistics are too incomplete to indicate whether the over-all rate (estimated to be around 38) has changed significantly, but in the city of São Paulo, after remaining nearly stable for several years, the birth rate fell from 31.9 in 1963 to 25.1 in 1968.<sup>8</sup> In a few other countries with complete birth statistics (according to the 1969 *Demographic Yearbook*) the birth rate also shows a declining trend. In El Salvador the rate remained around 49 up to 1963, then fell to 42 by 1969. In Guatemala, a similar decline from a rate around 49 began two years earlier. In these latter cases, however, the decline may be due, at least in large part, to changes in levels of mortality and in age structures and the extent to which there has been a real decline in fertility deriving from changes in the reproductive behaviour of the population is unknown. Verification would require observation of the evolution of other indices that cannot be calculated through the information available for these countries. In Chile, Costa Rica and Panama, however, declines in the gross reproduction rate (relation between members of the female births in two successive generations, assuming that the females survive

<sup>6</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chapter IV, tables 9-11. These totals include the 20 Latin American republics and four Caribbean countries. If all Caribbean countries and territories are included the totals rise by nearly 8 million for 1965 and 10 million for 1985.

<sup>7</sup> "El cálculo de poblaciones futuras por medio de proyecciones de tendencias pasadas dentro de marcos estrictamente demográficos tiene sus riesgos en cualquier época. Esto es particularmente cierto en América Latina en el período que se analiza. El supuesto de continuidad en las tasas de crecimiento debe llegar a ser, tarde o temprano un supuesto contrario a los hechos." (Irene S. Taeuber, "Tendencias demográficas futuras en América Latina"). "[The predictions of demographers] have all been dependent upon one premise 'If present trends continue. . .'. It is an ancient statistical fallacy to perform extrapolations on this premise when in fact the premise is invalid. It is my major point that *recent trends have not continued, nor are they likely to do so. . .* [recent] developments are so new and so novel that *population trends before 1960 are largely irrelevant in predicting what will happen in the future.*" (Donald Bogue, "The End of the Population Explosion", Trinidad and Tobago, Central Statistical Office, Research Papers, No. 4, December 1967.) Nathan Keyfitz, making a distinction between simple projections and projections that aspire to serve as predictions, has remarked on the wide discrepancies between past predictions and what has happened, and on the paucity of evaluation studies: ". . . miles de páginas impresas dan cifras futuras, unos cuantos cientos de páginas establecen los supuestos sobre los que se basan dichas cifras, unas cuantas docenas cuando mucho evalúan los métodos mediante la comparación de proyecciones pasadas con el desarrollo subsecuente." ("La proyección y la predicción en demografía: Una revisión del estado de este arte".)

<sup>8</sup> Olavo Baptista Filho, "Extensión del período de formación profesional y el comportamiento de la natalidad".

up to the end of their reproductive period) confirm the trends indicated by the birth rates.

It is interesting that in various countries a decline in the birth rate begins sharply around 1963, following a period of stability. This trend can be observed both in countries in which fertility had previously fallen to a moderate level, and in countries with stable high birth rates in which no previous declines had been observed. Programmes for diffusion of contraceptive practices were too incipient in the early 1960s to have had any significant influence on fertility. Neither does the rapidity of the decline correspond to the historical experience of slow diffusion of birth control practices in different social classes. A plausible hypothesis would be that during this period large numbers of persons already trying or wanting to control their fertility gained access through their own initiative to more efficient methods of doing so.

Preliminary data from six 1970 censuses suggest that in the few countries in which the demographic transition to lower fertility began some time ago it has proceeded more rapidly than expected, but that elsewhere decreases in fertility, if present, are not yet sufficient to do more than offset declining mortality. (It deserves emphasis that the preliminary totals frequently suggest erroneous conclusions when allowance is not made for under-enumeration.) Three countries show discrepancies on the low side between census population and projected population that are too large to be accounted for by under-enumeration. In Argentina, the projected population is 4.8 per cent higher than the census population (24,444,000 against 23,323,000). If one allows for some under-enumeration (probably less than 3 per cent), the population has been increasing a little more slowly than expected. In Chile, the discrepancy is 10.2 per cent (9,735,000 against 8,835,000) so that the real slackening in population growth must be quite significant. In the Dominican Republic, the discrepancy is 6.6 per cent (4,277,000 against 4,012,000). In this case, the discrepancy is harder to explain. Mortality may have remained at a higher level than expected or under-enumeration may have been extensive. No significant drop in fertility has been detected or expected, in view of the characteristics of the country. In Panama the projected population was about 2 per cent below the census population (1,399,000 to 1,425,000), a discrepancy that might easily be doubled once under-enumeration is allowed for, although fertility declined more substan-

tially during the decade than the projection assumed, so that a discrepancy on the high side might be expected. A positive balance in international migration or a more rapid decline in mortality than was assumed in the projection may have offset declining fertility, but present information does not permit verification of these hypotheses. In Mexico, a discrepancy of 3.4 per cent might be accounted for mainly by under-enumeration. Thus, the Mexican rate of population increase has not slackened significantly. In the particularly interesting case of Brazil, preliminary census figures indicate a population of 92,300,000, differing only 1.5 per cent from the projection for the census date (93,687,000); the percentage of under-enumeration in Brazil may be relatively important, and in all probability would more than offset the 1.5 per cent discrepancy.

Whether this is owing to the maintenance of fertility at higher levels than expected or a more pronounced decline in mortality than expected, or both, cannot be determined until the full census results are available.

Elsewhere demographers are watching anxiously for signs of change in reproductive behaviour and speculating on the influences at work. Even the highest fertility rates in Latin America are well below the biological maximum, and increases would be theoretically possible, although not all likely. Some degree of control over fertility is exercised, through some combination of actions influenced by social and cultural patterns, whether or not these actions are deliberately directed toward fertility control.<sup>9</sup> Even though the fertility rates

<sup>9</sup> A widely used classification distinguishes eleven "intermediate variables" as the only factors through which cultural conditions can affect fertility:

I. *Factors Affecting Exposure to Intercourse ("Intercourse Variables")*

A. Those governing the formation and dissolution of unions in the reproductive period.

1. Age of entry into sexual unions.
2. Permanent celibacy: proportion of women never entering sexual unions.
3. Amount of reproductive period spent after or between unions.

B. Those governing the exposure to intercourse within unions.

4. Voluntary abstinence.
5. Involuntary abstinence.
6. Coital frequency.

II. *Factors affecting Exposure to Conception ("Conception Variables")*

7. Fecundity or infecundity, as affected by involuntary causes.

for women of reproductive age continue at high levels in most of the countries, the over-all rates can conceal shifts that will be important for the future. In Mexico, for example, women in the youngest reproductive age group (15-24) show fertility rates significantly lower than did women in the same age group a few years ago, resulting from some combination of later marriage, wider use of contraception, and abortions. In the over-all rate, this decrease is offset by *higher* fertility among women 30-39 years of age, probably resulting from better health in this group and diminished mortality of male partners. If the newer reproductive pattern among the younger women persists and means that they are going to choose fewer children for the whole of their reproductive span, the over-all rate will eventually begin to drop.<sup>10</sup> Fertility differentials according to levels of income and education and degree of urbanization have been demonstrated for almost all the Latin American countries. It is reasonable to suppose that if urbanization continues and levels of education and income rise—and particularly if incomes and access to education are more evenly distributed—over-all fertility rates will decline.

On the basis of such evidence, inconclusive as it is, demographers are inclined to expect the beginning during the 1970s of pronounced declines in fertility in the more economically and socially dynamic countries of the region. How fast and how important this decline may be “remains a matter of speculation at this moment”.<sup>11</sup>

Later sections of the present survey will enter further into the evidence bearing on these speculations, although the discussion will perforce be inconclusive. For the present, two generalizations can be made with confidence.

8. Use or non-use of contraception.
9. Fecundity or infecundity, as affected by voluntary causes.

### III. Factors Affecting Gestation and Successful Parturition (“Gestation Variables”)

10. Foetal mortality from involuntary causes.
11. Foetal mortality from voluntary causes.

(Kingsley Davis and Judith Blake, “Social Structure and Fertility: An Analytical Framework”, *Economic Development and Cultural Change*, Vol. IV, No. 3 (April 1956); Spanish version in Kingsley Davis, *La Sociedad Humana*, Tomo II, EUDEBA, Buenos Aires 1957.)

<sup>10</sup> Centro de Estudios Económicos y Demográficos, El Colegio de México, *Dinámica de la Población de México* (Mexico, D.F., 1970), pp. 60-61, 83, 187.

<sup>11</sup> Walter Mertens, *op. cit.*

First, whatever the changes in fertility, population growth rates will remain for many years at high enough levels to bring about enormous increments to the population. As the population base expands, even rates of increase much lower than the present will produce very large absolute increments. It would be impossible to derive from existing evidence any plausible prediction as to when and whether Latin America will attain a stationary population, but such an event could hardly come about before the year 2050 and before the regional population has reached several times its present size.<sup>12</sup>

Second, decreases in fertility and in family size are bound to be very unevenly distributed, and probably with a continuing inverse relationship to capacity to bear the burdens and take advantage of the opportunities presented by increase in the number of children. The decline of fertility will proceed in the more urbanized and more dynamic countries, and in countries able to support relatively high levels of education and social services, before it begins in the smaller and poorer countries, which already have the highest fertility rates of the region. Within countries, fertility will decline in the wealthier, more “modern”, more urbanized localities before it does in the poorer and more rural internal regions. As to social classes and income groups, it is well-known that the middle and upper strata already practise family limitation more consistently and effectively than do the lower strata, particularly the urban marginal population and the rural masses. This differential will probably continue, whatever the speed and effectiveness of the diffusion of fertility limitation practices among the latter groups.<sup>13</sup> If so, continuing population increase may be an important factor in accentuating the multiple imbalances and distributional inequities that now characterize

<sup>12</sup> It has been calculated that the population of a country will continue to grow for 65 to 70 years after a unitary rate of reproduction (two children per couple surviving their parents) has been reached. If Latin America were to reach a unitary rate in 1980-1985, the population would become stationary at 552.4 million in 2045. A unitary rate in 1990-1995 would mean a population of 654.8 million in 2050, and a unitary rate in 2000-2005 would mean a population of 783.2 million in 2070. (Projections by U.S. Bureau of the Census, May 1970.) A unitary rate before 2000 seems highly unlikely.

<sup>13</sup> In Chile, crude birth rates fell between 15 and 23 per cent in the most urbanized provinces between 1961 and 1967; in predominantly rural provinces the drop was much smaller. While the rate of legitimate births fell, the rate of illegitimate births (accounted for mainly by the poorer strata) remained constant.

Latin American economic growth and social changes.

(b) *Geographical distribution, urbanization and internal migration*

It is well known that rapid population increase in most Latin American countries has been accompanied by increasing unevenness in the geographical distribution of population and by peculiarly rapid and concentrated urbanization. Within the past two decades there have been certain important advances in the frontiers of land settlement and a number of new urban growth poles in previously empty regions can be identified. Nevertheless, most of the regions previously empty or thinly populated have remained so; in most of the longer-settled predominantly rural regions, net population growth has been moderate, and some have become stationary or lost population. In fact, the areas that have lost population include various thinly populated zones of relatively recent frontier settlement, such as the Argentine Chaco.

Since there is no reason to doubt that the rate of natural increase in rural areas is as high as that in urban areas, if not higher, it is obvious that rapid and concentrated urbanization must involve a very considerable transfer of rural people into areas defined as urban. While variations between countries are wide, it can be roughly estimated that for the region as a whole, half of a natural rural population increase of 3 per cent per year has been moving out of the rural category and contributing directly from a third to a half of urban growth. This newly urban population, predominantly of young adults retaining typically high rural fertility rates, also accounts for an important proportion of urban natural increase.

In spite of a fair number of local investigations and a great deal of discussion it is not much easier now than in 1959<sup>14</sup> to make sound generalizations about the causes, characteristics and consequences of this phenomenon. Part of the difficulty derives from the inadequacies of past census data and the fact that most of the data available derive from the 1950 and 1960 round of censuses, while the cities have grown

<sup>14</sup> In 1959 a seminar co-sponsored by the United Nations, the Economic Commission for Latin America and UNESCO brought together studies constituting the first broad inter-disciplinary survey of urbanization in the region. (UNESCO, *Urbanization in Latin America*. 1961.) See also "Geographical Distribution of the Population of Latin America and Regional Development Priorities", *Economic Bulletin for Latin America*, Vol. VIII, No. 1 (March 1963).

enormously during the 1960s and the composition of their populations may have changed significantly. Part derives from the ambiguities of terminology. Neither the term "migrant" nor the terms "urban" and "rural" can be given satisfactory all-purpose definitions. This difficulty, in turn, derives from the complexity and diversity of the processes involved. There are many kinds of urban and rural areas. The "urban" character of a modern metropolis with several millions of inhabitants is quite different from the urban character of a new and specialized centre of heavy industry, a traditional medium-sized provincial capital, or a small town providing marketing and administrative services to a limited rural hinterland. Zones of modern mechanized farming, plantations, traditional *haciendas*, compact village settlements, Indian communities, and dispersed minifundio cultivators are equally diverse, culturally and demographically as well as economically. The composition of migration to and from the different kinds of urban and rural setting is in all probability quite different. Almost any assertion concerning urbanization and migration may be valid for some urban areas and some migrants. Subject to these cautions, the weight of recent evidence supports the following conclusions:<sup>15</sup>

(1) Migrants arriving in the large cities are an extremely heterogeneous group in respect to education, occupations, and social characteristics. They are predominantly from smaller cities and towns. The view still repeated in articles on urban problems that the migrants are mainly uprooted peasants and youth from peasant families is untenable, although such migrants may be of considerable importance in certain cities. (It should also be kept in mind that, from the standpoint of the modern metropolis, the cultural traits of small-town migrants may appear "rural".)

(2) Through a process of self-selection, the migrants have been predominantly young adults, better educated and possessing higher levels of skills than the averages for populations of their places of origin, although below the averages for the native populations of the cities to which they have migrated. The evidence does not support the view that the migrants have been "marginalized" in higher

<sup>15</sup> These conclusions are drawn mainly from two papers presented at the 1970 Latin American Regional Population Conference: Juan C. Elizaga, "Migraciones Interiores: Evolución Reciente y Estado Actual de los Estudios"; John J. Macisco Jr., "Some thoughts on an analytical framework for rural to urban migration".

proportions than the native urban population. There is evidence, however, that as the scale of migration to some of the great cities has continued to increase it has become less selective and less predominantly urban.<sup>16</sup>

(3) The investigations that have been made do not support the hypothesis that "step-wise" migration has been important; that is, that migrants have moved first to the smaller local urban centres, then to the great cities. The gap between rural natural and net rates of population increase, however, demonstrates that large numbers of rural people are somehow becoming "urban". Part of this would be due to the growth of small centres above the dividing line of 2,000 used to distinguish rural from urban, but a part must also be due to a replacement in the small towns and provincial cities of the out-migrants by rural in-migrants.<sup>17</sup>

(4) In some of the larger countries there are indications that the concentration of urban growth in the largest centres is beginning to be reversed. Some second-rank cities are growing faster than the main agglomerations, and there are significant increases in the numbers and quantitative importance of small towns.<sup>18</sup> How-

<sup>16</sup> See Alan B. Simmons and Ramiro Cardona G., "La selectividad de la migración en una perspectiva histórica: El caso de Bogotá (Colombia) 1929-1968"; Jorge Balán and Elizabeth Jelin, "Migración a la Ciudad y Movilidad Social: Un Caso Mexicano"; and Jorge Balán, "Migrant native socio-economic differences in Latin American cities: a structural analysis" (with commentaries by various sociologists), *Latin American Research Review*, Vol. IV, No. 1 (1969). The hypothesis has also been advanced, on the basis of studies in Rio de Janeiro and Santiago, that migration to the great cities is selective of both extremes of the socio-economic continuum. (Bruce H. Herrick, *Urban Migration and Economic Development in Chile*, MIT Press, 1965.)

<sup>17</sup> In Colombia, "a fill-in migration pattern (in which rural migrants move to villages and small towns, and from which other residents move on to larger towns and cities) seems to fit the considerable amount of admittedly fragmentary evidence better than a stage or step migration process. . . . The significance of this fill-in process, if substantiated by further studies, is very great. It would mean that the smaller towns are passing through a deeper crisis than is usually assumed. The large towns, after all, are receiving the more dynamic and younger migrants; the small towns lose some of their best people who are replaced by peasants without skills and without capital". (*Towards Full Employment. A Programme for Colombia* prepared by an Inter-Agency Team organized by the International Labour Office. ILO, Geneva, 1970, appendix 5, para. 9.)

<sup>18</sup> *Dinámica de la Población de México*, op. cit., pp. 124-125, 132; also John V. Grauman and Chia-Lin Pan, "Rasgos distintivos de la Urbanización en América Latina". Conclusions concerning the importance of this trend await an analysis of the 1970-1971 censuses.

ever, the predominance of the main agglomeration is commonly so great that the limited changes observed may not lead to a significant diminution in this predominance. In Colombia, on the other hand, the increasing predominance of Bogotá has transformed a process of urban growth previously much more balanced than in the other countries. At the same time, in some of the larger countries the relative importance of the urban population, and within this population the importance of the largest centres, has grown to a point at which the share of migration in further city growth is bound to decline and the inter-urban character of such migration is bound to be accentuated.

These tentative conclusions are based on mainly field investigations in a limited number of cities and for different periods during the 1950s and 1960s. The possibility cannot be ruled out that predominant trends elsewhere are different, in respect to the importance of rural migrants and the differential marginalization of migrants, or that predominant trends have changed since the date of the investigation. They also do not throw sufficient light on the future. While the rate of growth of population is relatively inflexible in the short term, the currents of geographical redistribution of such population might change considerably within a few years. The great urban agglomeration may well be increasingly strangled by inability to offer minimum infrastructural services and amenities, while the benefits now sought from residence in such agglomerations will certainly be more evenly diffused by innovations in mass communications and transport.

The most important factor may well be the ability of different kinds of locality to offer employment, or at least a marginal livelihood, under the conditions of worsening maladjustment between supply and demand for labour that can be foreseen. The receptiveness of the population, rural as well as urban, to any incentives to migrate will probably continue to increase. National policies and measures concerning industrial location, highway and other public works construction, agrarian reform and distribution of social services and social assistance can influence decisively the scope and directions of such migration. The difficulty is that the stimuli provided by public programmes are likely to provoke migratory flows larger than can be absorbed productively.

It has been suggested that a slowing down of urbanization might mean postponement of the expected declines in national birth rates, in view of the weaker rural motivations and

means for fertility control. This factor, however, may well be offset by the accelerating penetration of urban cultural traits and aspirations in the countryside.

(c) *Life expectancies, age and sex distribution*

The average life-span in Latin American as a whole has increased markedly during recent years, and this increase is expected to continue. For the region as a whole, the expectancy of life at birth is expected to rise from 60.2 years in 1965-1970 to 66.7 years in 1980-1985. The latter life expectancy is 9 years greater than that projected for Asia as a whole, and only 6 years less than that projected for the high-income countries taken together. The past increases have been very unevenly distributed; the smaller and poorer countries are expected to gain more rapidly than the rest during the coming years, but will still lag behind in 1980-1985. The same forecast can be made for the poorer and more rural internal regions of each country. For example, the life expectancies projected for Guatemala, Honduras, Nicaragua and El Salvador range between 56.8 and 63.9 years, with Bolivia and Haiti at 50.0 and 53.5 respectively, while Brazil is expected to reach 67.6, Colombia 65.5, Mexico 68.6, Peru 67.0, and Venezuela 70.2.<sup>19</sup>

The high rates of fertility and of population increase, however, mean that even changes of these dimensions in life expectancies will have little effect on the age distribution of the population and the notoriously high ratios of population in the ages conventionally defined as those of dependency to the population in the "active" age groups. The percentage of population in the 0-14 age group would decline only slightly, according to median variant projections, from 42.5 per cent in 1965 to 41.4 per cent in 1985. The potentially active age group 15-64 would rise slightly, from 53.8 per cent to 54.4 per cent. The age group 65 and over, in spite of a very rapid increase in number resulting from greater average longevity, would increase only from 3.6 per cent to 4.0 per cent of the total. The averages, of course, conceal very significant differences between countries. In Argentina, Chile, Cuba and Uruguay, the youthful population, already far below the regional average, will decline more sharply, and the aged population, already above the regional average, will rise considerably. In

<sup>19</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chapt. IV.

Chile and Cuba, the percentages in the middle "active" age group will rise significantly if the decline in fertility continues. In Argentina and Uruguay, where there is little room for further decrease in fertility, the cohorts born in past periods of higher fertility are reaching retirement age, and the percentages in the "active" age group will decline in relation to the two dependent groups combined.<sup>20</sup> In a few of the smaller countries the percentage in the 0-14 group will continue to rise.

It follows that the very high ratios of dependent population (under 15 and 65 and over) to potentially active population will not change very much over the next fifteen years except in the four countries named above. According to one projection, the ratio for the region as a whole would decline from 86-100 in 1970 to 84-100 in 1985, compared to ratios of 57 and 58 for the "developed" regions of the world and 81 and 77 for the "developing" regions as a whole.<sup>21</sup> Since dependency ratios in the four countries named above are only slightly higher than the average for the "developed" regions, ratios in most other Latin American countries are well above the regional average, in a few instances the development population being practically as large as the population in the active age span. Various implications of these dependency ratios will be discussed in later sections.

Within the Latin American countries both the age distribution and the sex distribution of the population are being affected significantly by the currents of geographical redistribution and urbanization. In view of the inadequacies of information on migration these phenomena can be mentioned only in very general terms. It is clear that young adults are over-represented in the populations of the cities that receive such migration and under-represented in the rural zones and small towns that are sources of migrants. Women are over-represented in migrations to the cities and in migrations over short distances. Men are over-represented in migration to zones of land settlement and in migrations over long distances. These differentials might be expected to have important repercussions on the relative dynamism of the labour force and in capacities

<sup>20</sup> This trend is also due in part to the fact that the cohorts affected by the large-scale immigration of working-age adults in the past are now reaching retirement age.

<sup>21</sup> The dependency ratio thus defined is, of course, much smaller than the real dependency ratio, mainly because of the limited participation of women in the active population.

for innovation in the zones of out-migration and in-migration. The differential migration of women should have repercussions on the formation of families. These topics have been the subject of speculation for some years, but relevant information continues to be scanty.

(d) *Types of countries*

The above summary suggests that the Latin American countries fall into several distinct groups in regard to their population structures. These groups coincide in the main with types that can be distinguished on the basis of other social and economic characteristics. For present purposes it is unnecessary to enter into a systematic discussion of the typologies that have been proposed.<sup>22</sup> So as to guard against over-generalization, however, it may be useful to indicate roughly the distribution of the Latin American population among groups with differing demographic situations and differing combinations of factors influencing future evolution. These differing situations suggest the desirability of corresponding differences, at least in emphasis, in national population policies:

(1) About 10 per cent of the population of the region lives in two countries (Argentina and Uruguay) in which fertility and mortality have fallen to levels similar to those of the highly urbanized and industrialized countries of other regions.

(2) About 7 per cent lives in two countries (Chile and Cuba) in which the transition to a similar demographic pattern seems to be well under way.

(3) More than 67 per cent lives in five large countries (Brazil, Colombia, Mexico, Peru and Venezuela) with high rates of population increase up to the present, with rapid urbanization and considerable economic growth, but with great and probably widening inequalities between internal regions, urban and rural zones, and economic sectors.

(4) About 1 per cent lives in two small countries (Costa Rica and Panama) with very high rates of increase up to the present, but with recent indications of the beginning of a transition, and with urbanization, income levels and educational levels above the regional average.

<sup>22</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chaps. III and XVIII. See also Carmen A. Miró, "Aspectos Demográficos de América Latina", CELADE, document A/88.

(5) About 9 per cent lives in seven small countries with no more than 6 million inhabitants in 1970 (Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic) with very high rates of population increase, with urbanization, income levels and educational levels lower than in any of the preceding groups, although with rates of growth in these factors falling in the same range as the countries in group 3.

(6) About 3 per cent lives in two countries (Bolivia and Haiti) in which the highest mortality rates of the region limit population increase to moderate rates in spite of high fertility. In these countries levels of urbanization, incomes and education are even lower than in group 5, and rates of increase in these factors also tend to be low.

(7) About 3 per cent lives in four independent countries and nearly twenty other separate territorial units in the Caribbean area; most of these small and densely populated countries and territories have rates of fertility and of population increase that have fallen significantly from previously high levels; in a good many of them emigration outside the region has helped to lower rates of population increase and has affected age distribution.

The justifications, practicability and objectives of public programmes designed to influence the demographic variables, and particularly the urgency of public support of such programmes, should vary considerably in the different groups of countries and even between countries within the groups. The case for action to reduce fertility rates, for example, should be strongest in group 5, while the need for exertion of influence on geographical distribution of population would be strongest in group 3.

3. *Interrelations between demographic change, social and economic change, and public policies*

It can be assumed that the demographic changes summarized above influence and are in turn influenced by the whole range of social and economic change processes going on in Latin America, as well as by the public policies that aspire to channel these changes towards development and enhanced human welfare. It can also be assumed that, while these influences can be separated for analytical purposes, they do not operate unilaterally and in isolation. The meaning of each factor depends on its insertion into a specific social and economic

structure and its impingement on specific social classes and types of family within this structure. In a well-known folk tale a simple peasant giving shelter to a stranger on a cold night became suspicious of magic when the stranger blew on his hands to warm them and then blew on his soup to cool it. It would be just as ingenuous to be surprised if prosperity or poverty can promote rapid population growth and urban concentration under some circumstances and discourage these trends under others, or if these demographic trends can promote economic growth under some circumstances and frustrate it under others.

Most of the generalizations on the interrelations between demographic change and other cultural, social and economic variables have been based on investigations focused on the past of the high-income industrialized countries, or on incomplete models, or on suppositions that are of doubtful relevance to the real situations of Latin America. These generalizations have been subjected to searching criticisms, particularly in several of the documents presented to the Latin American Regional Population Conference, but empirical information is still insufficient and, an integral conceptual interpretation explaining the interrelationships within the whole range of essential variables is lacking. The present section will thus perforce be limited to a very preliminary confrontation of these generalizations with a diagnosis of Latin American realities that has been set forth in previous ECLA studies.

#### (a) *Social stratification and families*

Demographic investigations and analyses, including a few relating to Latin America, have demonstrated fairly consistent relationships between social stratification and fertility. Fertility reaches its highest level in the lower or poorer strata, declines in the middle strata, rises again slightly in the higher or wealthier strata. Roughly similar inverse relationships have been found between fertility and occupational levels (frequently used as the main indicator for social stratification), income levels, educational levels, residential pattern (large city, town, rural).

The influence of social stratification on fertility is exerted through the family, by shaping values and decisions, first on family formation, then on the number and spacing of children, then by helping to determine the family's capacity to act on such decisions and the means by which it chooses to do so. The strength of family motivations is more im-

portant than ready availability of means. It has been pointed out that in nineteenth-century Western Europe low fertility was attained through family decision, in spite of public disapproval and means of control that were inconvenient and difficult of access. In many countries today, fertility continues high in spite of relatively convenient contraceptive techniques and strong public support for their use.

It can be assumed that families of the urban upper and middle strata throughout Latin America have relatively well-defined objectives as to numbers of children and have access to effective means of accomplishing these objectives. The fact that the middle strata choose to have relatively few children can plausibly be attributed to the increasing strain exerted by larger numbers of children on their capacity to maintain the standard of living associated with their rather precarious middle status and on their capacity to educate the children to a level enabling them to maintain or improve this status in the next generation. The higher fertility of the upper strata can be attributed to their greater security and capacity to support a large family at their accepted standard. In both strata, restrictions of fertility seem to be quite recent and associated with the rapid "modernization" of these strata under the cultural influence of the high-income world centres. Until recently, in fact, numbers of children among the upper strata were so high that they were often accused of monopolizing the middle occupational roles to provide for them, thus inhibiting upward mobility. Rising income levels and greater security among the middle strata might encourage them to have more children, and greater insecurity and the disadvantages of division of property among too many heirs might induce the upper strata to have fewer. In any case, it can be expected that the aggregate decisions of the families of these strata will produce moderate rates of population increase, with some fluctuations deriving from the economic and political state of the countries, and that in the countries in which economic growth and urbanization proceed with at least moderate speed, the proportion of families adopting and acting on decisions contributing to moderate fertility will increase.

The really urgent question concerns the families, a majority in most countries of the region, belonging to the rural and urban lower strata that in practically all societies have had the highest fertility rates, now no longer offset by high mortality. There is an abundant litera-

ture of explanations for the high fertility of the poor: the past need to have many children to insure that some would survive; the economic value of children in traditional agricultural and artisan-type activities; the culturally determined desire to beget many children as a proof of masculinity ("*machismo*"); the role of descendants as the only sources of social security for the aged; the inability of the marginalized lower strata to exert any foresight, or their lack of confidence that any restraint they might exercise in procreation would lead to improvement in their lot.

The lower strata undoubtedly comprise many types of families undergoing different kinds of change, but the sociology of the family in Latin America has received too little serious attention for it to be possible to construct a typology of families permitting assessment of the relative importance of these explanations. It can be assumed that the differences between urban and rural families of the lower strata are very wide in regard to motivations and it is probable that the differences can be nearly as wide between families in different rural settings or urban settings.

At present, under the conditions of social and economic change with many contradictions and discontinuities characteristic of Latin America, most families of the lower strata are exposed to conflicting values and motivations. Traditional motivations for high fertility continue to influence behaviour after they have lost their relevance to the situation of the family and combine with reactions of apathy and passivity in the face of difficulties and sources of insecurity beyond the capacity of the family to resolve. The families in question are all (except possibly in some of the remotest and poorest internal regions, where high fertility is still offset by high mortality) affected by the specific kinds of "modernization" Latin America is now undergoing, but they are affected in largely unprecedented ways that make inferences drawn from the reproductive behaviour of traditional societies or of the poorer classes in high-income industrialized societies of doubtful validity as guides to the future. The consequences of present trends for the low-income families can be summed up as follows:

- (1) Increasingly pervasive exposure to modern mass communication media that do not require literacy: television in the cities, transistor radios almost everywhere.
- (2) Exposure to educational, health, and other public social services that are very unevenly

distributed and generally of poor quality but that are much more widely accessible and more actively sought than was the case in societies at equivalent income levels in the past.

- (3) Access to mass transport, particularly buses, making movements between rural areas, towns, and cities unprecedentedly cheap and easy.
- (4) Exposure to modern consumption stimuli, frustrated in large part by low incomes and the bias of domestic industry towards production for the upper-income market.
- (5) Opportunities for employment in modern mechanized and rationalized enterprises widely known but accessible only to a small minority; for the majority "modernization" in this area takes the form of "marginalization": livelihood in the previous agricultural and artisan-type occupations becomes more insecure and more unattractive in terms of relative if not absolute income levels, while part of the labour force previously in these occupations is displaced and becomes dependent on hand-to-mouth expedients.

Up to the present, the difficulties and forms of insecurity to which the urbanizing lower strata are exposed, have had no measurable impact on their reproductive behaviour; according to the fragmentary data, fertility rates in the urban marginal settlements seem to be as high as in the rural areas. It has been plausibly inferred that, while middle-class insecurity motivates low fertility, lower-class insecurity produces passive acceptance of high fertility, countered only by expedients that require least foresight, particularly abortion.

This does not necessarily mean that lower-class insecurity may not have different consequences in the future, as new and more convenient contraceptives become available and as "modern" urban values and consumption aspirations are internalized. There may be some temptation to under-estimate the capacity for foresight and decision-making among the strata in question, and to over-estimate the time-span needed for effective changes in attitudes towards fertility, often placed at a full generation. The weight of evidence, scanty as it is, suggests that decisions on migration are, in general, taken rationally, and in realistic appreciation of the range of alternatives for livelihood, none of them very inviting. Whether the fertility patterns of the urban and rural lower strata will change to an important extent as long as the trends towards marginalization continue is one of the many demographic ques-

tions that cannot now be answered with any confidence.<sup>23</sup>

In view of the probable wide differences between family structures and trends in different settings, it is unsafe to generalize either concerning the influence of family characteristics on fertility or concerning the influence of possible fertility changes on the family. If the woman is more motivated and takes the leading role in fertility limitation, as seems likely from the investigations, lower fertility would be at once a consequence of a stimulus toward a more independent role for women in the family and the society. At the same time, female-centred families, in which the woman assumes main responsibility for the up-bringing of children fathered by a series of male partners, have long been characteristic of the lower strata in some Latin American settings, although uncommon and deviant in others. Such patterns might be promoted by the combination of fertility control exercised by the woman and male inability to function dependably as breadwinner.

It would also be naive to ignore the fact that a great deal of sexual activity capable of contributing appreciably to the birth rate in the absence of generalized resort to contraception or abortion is divorced from any family structure, even the female-centered family. In many urban settings in which previous family patterns and controls are subject to strain and disruption this phenomenon, or at least the social evils deriving from it, seem to be gaining in importance. Young girls made pregnant in casual or experimental sexual encounters either resort to abortion or abandon their children. Investigations are needed to distinguish the real extent of this phenomenon from the alarmist generalizations sometimes made about it, and to test the hypothesis that it is self-perpetuating, as increasing numbers of children lacking any stable family up-bringing reach puberty.<sup>24</sup> To the extent that reproductive behaviour of this kind exists, the emphasis in

<sup>23</sup> A 1969 study of fertility behaviour of lower class women in Rio de Janeiro indicated a very marked increase in knowledge and use of the more recent contraceptive techniques since the CELADE inquiry in 1963, although poverty and inadequate information hindered the effective use of these techniques. (George Martins, *Fertility Behaviour of Lower-Class Women in Rio de Janeiro*, to be published.)

<sup>24</sup> In Venezuela, the Consejo Venezolano del Niño has estimated the number of abandoned children at 350,000. (*La Mujer Venezolana y la Regulación de Nacimientos*, Centro Venezolano de Población y Familia, Caracas 1970, p. 13.)

most declarations concerning population policy on the right of the *family* to determine the number and spacing of children becomes irrelevant, and the problem centres on the right of the youth to have sexual relations without unwanted consequences, or the right of society to take measures combatting reproduction under such completely unpropitious circumstances.

#### (b) *Social services*

In relation to all of the public social services and the associated components of the level of living two main questions present themselves:

- (1) what are the influences of population growth and redistribution on the capacity of the State to provide such services and on the capacity of the families to make use of them?
- (2) what are the influences of the services themselves, and of the gains in levels of living expected to derive from them, on population growth and redistribution?

These questions cannot be answered by studies restricted to the demographic variables and the sectoral social services taken separately. The growth, distribution and content of the social services are influenced by the values and priorities dominant in a given society. Demographic trends intensify difficulties or facilitate opportunities that would be present in any case. The redistributive role of social services in most of Latin America has been limited; differences in access to such services coincides for the most part with differences in income levels, occupational levels, and urban or rural residence.<sup>25</sup> Within this over-all it would be difficult to demonstrate whether the social services have a significant role in the differences in demographic traits between social strata and localities.

As to the future influence of demographic change on the social services themselves, it can be assumed that in all social sectors declining fertility would enhance the capacity of the State to raise the quality and coverage of services and the capacity of families to take advantage of them. It must be kept in mind, however, that the unsatisfied backlog of demand for services and needs for improvement in nutrition and housing are so great that it would be unrealistic to expect demographic changes to bring about, during the short and medium term, any alleviation of the pressures on the State to allocate resources to social

<sup>25</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., Part II.

action. On the contrary, to the extent that families become able to control their own fertility they will also become better able to articulate and enforce demands for public action to help them meet their other needs. In the longer term, changes in age distribution will bring about important shifts in the relative importance of different social services and in the more specific activities in each sector. During the 1970s, however, this factor will be of minor importance except in the minority of countries mentioned above, in which the transition to new demographic patterns is well advanced.

(i) *Education.* In most Latin American countries, the percentage of population in the age group 5-14 is between 26 and 28.<sup>26</sup> The size of the group is increasing by about 3 per cent annually. If it is assumed that the minimum objective for universal education calls for six years of schooling for each child, primary school enrolment should account for at least three-fifths of the age group, or more than 15 per cent of the total population. The equivalent percentage for most of the high-income industrialized countries would be 9 or 10, and the annual rate of increase between one and two per cent. The magnitude of the burden, under these conditions, of staffing and financing adequate educational services is too obvious to require extensive demonstration.

Nevertheless, the magnitude of the task has not prevented steady improvements in educational levels in most Latin American countries during recent decades. Enrolment at all educational levels has grown faster than population. Census data for around 1960 indicates higher literacy rates and more prolonged school attendance for the younger age groups than for the older, and there is no reason to doubt that the 1970 censuses will show similar trends. Education in Latin America is undergoing a complex crisis, in which costs have an important role, but it cannot be demonstrated that the large size and rapid growth of school age groups makes the cost of attending to their minimum formal educational needs prohibitive. Moreover, many educators are now convinced that, through intelligent use of technological innovations and the elimination of irrelevant

subject-matters and out-dated teaching routines, the basic tasks of the schools could be accomplished in less time and at less expense per pupil.

In spite of the apparently favourable quantitative trends, the distribution of education remains qualitatively as well as quantitatively inverse to the social level of the different population groups. This differential derives partly from the capacity of the better-off strata to influence the distribution of educational resources, but it also derives from the disadvantages of the poorer strata in making use of whatever educational services are offered. This problem cannot be discussed here,<sup>27</sup> but it would seem that the high fertility of these strata is an important contributing factor to their very limited ability to make effective use of the schools. The large number of children in a family does not prevent their attendance for a few years of elementary schooling, but the associated over-crowding and malnutrition hamper their ability to learn, and as incidental costs mount in the higher years of the school system and the possibility of earning by the child appears, the likelihood of his continued school attendance becomes very small.

The geographical redistribution of population complicates the problem of distribution of educational services; urban zones of in-migration are under particular strain. However, the quality of educational services in rural areas and small towns is generally so poor that there is not likely to be much under-utilized capacity even when the child population begins to decline. It is more important that the differential ability of the cities to exert pressure for a share of public educational resources insures that the rural schools continue to be starved of funds and served by untrained teachers.

As to the influence of education on demographic change, the negative relationship between educational level and fertility, generally reaching significant dimensions for parents with more than four years of schooling and increasing the higher the educational level, is well-known, but the causative role of education can hardly be separated from occupation, income and urban residence.<sup>28</sup> Once families reach a situation in which they can realistically expect to be able to maintain their children in school

<sup>26</sup> The exceptions are Argentina, Uruguay, Chile, Cuba and the English-speaking Caribbean countries, where the corresponding age group is smaller in varying degrees. The age group is one conventionally used by demographers. The age group 7-16, which would correspond more closely to normal school ages, would be only slightly smaller.

<sup>27</sup> See *Education, Human Resources and Development in Latin America* (United Nations publication, Sales No.: E.68.II.G.7) chapt. III.

<sup>28</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chapt. IV, and *Dinámica de la Población de México*, pp. 76-77.

long enough to give them future status and occupational advantages, it is almost inevitable that the advantages of facilitating this by having fewer children would come forcibly to their attention.

It has often been repeated that the urban bias of rural education in Latin America helps to foster an undesirably high level of cityward migration. This is plausible, but there is no conclusive proof. Investigations do support the different proposition that the possibility of *better* education in the city is a primary or secondary motive for many families of migrants and migrant youth. The role of the weak rural school in persuading peasant youth to migrate is probably less important than the role of the small town school in persuading local youth to seek a more "modern" version of urban life.

The possibility of a direct and intentional impact by the schools on reproductive behaviour and attitudes toward population policy issues, through sex education, family life education, and what has been labelled *concientización demográfica* is only beginning to come under discussion and experiment.<sup>29</sup> Such education will probably be extended fairly rapidly in the schools attended by children of the urban middle strata. Its relevance to the schools of the high fertility lower strata is much more questionable, as long as children attend for only four years or less, in pre-adolescent ages, and from cultural backgrounds making communication with a teacher on such topics difficult. Exaggerated hopes have often been placed on the potential role of schools, unable to accomplish their minimum tasks of imparting literacy and the values of the national society, in promoting agricultural innovation, community development, etc. The immediate prospects for demographic and sex education seem no better, although in the longer term, assuming success in more general educational reforms and a very great expansion and transformation of adult education, their importance may become considerable.

(ii) *Health*. There is general agreement on the key role of public health and related activities in slashing mortality rates and thus bringing about accelerated population growth. This influence has been exercised mainly through activities of relatively low per capita cost and relatively undemanding of basic changes in the attitudes and ways of life of the beneficiaries:

<sup>29</sup> See *Informe Final* and working document of Reunión de Especialistas en Población-Educación, organized by UNESCO, Santiago, 28 September-1 October 1970.

the control of mass diseases through inoculations, insecticides, improved water supplies and sanitation. There is still a good deal of room for improvement in the control and preventive activities. In particular, much of the urban population and most of the rural still lacks potable water and safe waste disposal. Air pollution, automotive traffic, and other concomitants of urbanization are bringing new health threats that will require control measures.

At the same time, the growth of population, its urban concentration, and the diffusion of "modern" attitudes through the mass media are generating an enormous demand for curative services. As the experience of the high-income countries indicates, the per capita costs of modern medical care are extremely high and tend to rise faster than general price levels. The capacity of the majority of Latin American families to meet such costs from their own resources is obviously very small, and the attempts of the State to do so are very far from meeting the demand. Within the overall trend, the patterns of age distribution mean that demands for medical care of children will remain numerically predominant; and these demands will be swelled, as long as general living conditions do not improve markedly, by poor nutrition, poor sanitation, and deficient housing. The same conditions will increase the demand for curative services from the population of working age. The population in the upper age groups will remain a relatively small part of the total, but its absolute numbers are growing very rapidly, and adequate medical care for these age groups is particularly costly.

The family planning programmes that are being established within public health programmes will have to compete for resources with the whole range of preventive and curative services. It can be argued plausibly that these programmes will reduce the over-all curative needs to the extent that they succeed in reducing fertility; that they will reduce the present burden on the medical services of dealing with the consequences of botched illegal abortions and that they will in fact provide better ratios of benefits to costs than will the curative services. Similar arguments can be made for nutrition programmes. Nevertheless, these hypothetical benefits will not affect the real pressures on the health services. The unsatisfied potential demand for curative services is very great, and is sure to grow stronger whatever the trends in fertility. In fact, to the extent that families really practise "responsible parenthood" they

will become ever more insistent on the medical care of the children they have. As in the case of education, demographic trends will intensify pressures that would be present in any case, and the reconciliation of these pressures with a sound system of priorities for allocation of resources to health is going to be very difficult.

(iii) *Food supply and nutrition.* During recent times, production of foods in Latin America has slightly better than kept pace with population increase, production capacity in most countries is undoubtedly adequate to maintain this trend during the foreseeable future, or improve it if appropriate organizational and technological changes are carried out. It is particularly unlikely that food shortages or famine will check population growth in Latin America.

At the same time, it is well-known that present levels of food consumption for the majority of the population in most countries are seriously deficient. The immediate problems lie in the inefficient organization of agricultural production and distribution (raising the costs of foods, making for sluggish response to demand, and bringing about wastage of up to 30 per cent of the foodstuffs between producer and consumer); in the low incomes that restrict the capacity of the majority to acquire enough food, and in the content of the diet, determined partly by poverty and partly by ill-advised consumption habits. Per capita production of proteins has fallen off and it can be deduced that protein malnutrition, already serious among the poorer strata, is becoming more acute. This has particularly ominous implications for the future quality of the population, since protein deficiency in childhood affects the stature and probably the mental capacity of the adult.<sup>30</sup>

In regard to the distribution of foods, it hardly needs saying that statistically adequate supplies at the national level do not guarantee that the poor get enough to eat. At the same time, various dietary investigations have indicated a maldistribution of food within low-income families that affects particularly the numerous children; the parents consume most of whatever protein-rich foods the family is

<sup>30</sup> It has been pointed out that protein malnutrition, by reducing the stature and vigour of the population, also reduces the per capita need for foodstuffs. If it were eliminated, the future adult population would be taller and more robust, and at the same time would require more food. (Howard A. Osborn, FAO Regional Statistical Advisor for Latin America, "Relaciones entre Niveles Nutricionales y Crecimiento de Población en América Latina".)

able to buy, and the consumption of protein does not increase with the size of family.<sup>31</sup>

(iv) *Social security.* Social security, in Latin American countries with high rates of population increase has thus far been limited to relatively small parts of the urban salaried and wage-earning population. The only countries that have managed to extend social security to the greater part of their active population are the minority with relatively high degrees of urbanization and moderate rates of population increase.<sup>32</sup> Thus, no clear-cut influence of social security on demographic change can be demonstrated, but there is an obvious relationship between high population increase, with the associated age distribution and traits of the active population, and inability to universalize social security.

Thus far social security legislation and programmes have given very inadequate attention to demographic information, while the information itself has been inadequate for social security planning. The emphasis in most Latin American programmes has been on the provision of medical services and on retirement pensions. The former have corresponded to a very strong demand, as indicated above, but have probably responded too predominantly to the curative side of the demand, have not been based on clear conceptions of priority health needs, and have not been co-ordinated with health services provided by other public agencies. Retirement pensions have commonly involved inequities between different groups covered by social security and the age for entitlement has commonly been set unrealistically low. As life expectancies rise and larger numbers of beneficiaries pass the ages of entitlement, the systems become increasingly unable to meet their obligations. The only alternatives to more realistic actuarial bases for pensions—politically extremely difficult—are bankruptcy or dependence on inflation to wipe out most of the burden of pension payment.

Very few of the systems have tried to relate themselves to the predominance of children and youth of dependent ages in the population structures. Aside from the provision of medical services to the families of covered workers, the main way in which this could be done would be through family allowances to redress the disadvantages brought about by the combination of numerous children and low incomes. It is often

<sup>31</sup> *Ibid.*

<sup>32</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chapt. XLV.

argued that family allowances would constitute an undesirable incentive to continuation of high fertility. This cannot be demonstrated, although the argument would probably have some validity if applied to families eking out a precarious day-to-day existence, in which children's allowances might be the largest and the only dependable part of total income. Family allowance systems seem to have had no generalized effect on fertility in the European countries in which they have been provided for many years, often with the deliberate intention of encouraging larger families. The few Latin American countries that have introduced family allowances within social security are Uruguay, with low fertility, and Chile and Costa Rica, both with declining fertility. It seems reasonable to expect that children's allowances, particularly if combined with well-conceived health, nutritional and social welfare services for children would, on balance, promote responsible parenthood and rational controls on fertility. However, the difficulties in the way of provision of such allowances to the families that need them most seem insuperable, without the accompaniment of much wider changes in societal priorities, economic organization and income distribution. The financing of family allowances by payroll taxes, making them part of the wage bill, means in practice a redistribution of income within certain strata of the wage-earners, with part of the costs passed on to consumers of the products of the covered occupations—including the marginal families that receive no benefits. The public sector, under prevailing conditions, would be quite unable to finance children's allowances for all families with incomes too low for them to meet a defined standard of needs for their children.<sup>33</sup>

(v) *Housing*. There is no evidence that housing deficiencies up to the present have had any clear out influence on demographic trends in Latin America. It is probable that bad housing contributes to higher mortality rates, but this factor cannot be separated from other

<sup>33</sup> According to the report of the inter-agency team on employment policy in Colombia, "it is in any case questionable whether any country with a demographic problem like Colombia's can afford a family allowance system. . . . It may be argued that the purpose is welfare, but family allowances are paid primarily to those with jobs in the modern sector (and government service), not to the unemployed or rural workers whose moral claim is incomparably greater. In any case the most effective form of protecting children from the consequences of poverty is to provide them with free milk and other forms of nourishment directly, through clinics and schools." (*Towards Full Employment*, op. cit., para. 640.)

unfavourable aspects of the environment. It is also probable that housing shortages and high costs of housing enter into the motives that induce families of the urban middle strata to have fewer children. It does not seem that even the worst degrees of over-crowding or difficulties of newly formed families in finding living quarters have appreciable effects on the fertility of the poorer strata. In fact, once over-crowding and inability to meet the costs of conventional housing reach a certain point, these strata solve their problem through the well-known expedient of unconventional and unregulated types of shelter.

Public housing programmes have sometimes been accused, along with other urban services provided by the State, of stimulating the excessive flow of migrants to the large cities. It would be hard, however, to demonstrate *direct* stimuli of this kind. Investigations among urban migrants do not indicate that the hope of better housing has any importance among the motives for migration. Moreover, given the dimensions of even the larger public housing programmes, migrants would have no access to such housing before several years' residence in the city. There may, however, be an indirect influence of some importance: large public housing programmes create opportunities for unskilled and semi-skilled labour of the kind migrants can offer, and thus may attract a larger flow. In this respect, housing does not differ from any large-scale public works project.

From the other standpoint—the influence of demographic change on housing levels and housing programmes—the combination of rapid growth and concentrated urbanization has faced the State with unmanageable demands, and compelled the diversion of important public resources into housing programmes that have done very little to meet the needs of the poorer urban strata and practically nothing for the rural population.<sup>34</sup> Public programmes are now turning perforce to lower-cost solutions intended to supplement the efforts of the families themselves: provision of urbanized building lots and materials, and various schemes of aided self-help. Nevertheless, housing demands with a strong political appeal are sure to exert very heavy pressures on public resources and organizational capacities throughout the foreseeable future.

<sup>34</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chapt. XIII.

Any reduction in the rate of population increase would not begin to affect the quantitative demand for new dwelling units for nearly twenty years, since this depends on the rate of formation of new families by young adults. It would affect the qualitative aspects of the need almost immediately, since small dwelling units would be less inadequate for families with fewer children.

(vi) *Social welfare and other services relating to family and community life.* A discussion of relations between these forms of public social action and demographic change would have to be couched almost entirely in terms of future possibilities. Up to the present, the coverage of social welfare, community development and related programmes has been too limited to have any effect on demographic change, even if designed to do so, which has not been the case.

Quite recently, family planning advocates have begun to look to social welfare programmes and social workers as potential resources for the dissemination of receptiveness to family-planning, particularly among the marginal families. Efforts are beginning to give the training of social workers a demographic content. The results in terms of more effective promotion of family welfare may be of some importance, but it does not seem likely that the quantitative demographic trends will be affected significantly.

### (c) *Employment*

In countries with the demographic structures and trends typical of Latin America the population in economically active ages is increasing by about 3 per cent annually. This potential labour force is predominantly youthful, particularly its urban component. It can plausibly be conjectured that in the larger countries with their high rates of urbanization and movement of population out of agriculture, new entrants to the male population seeking work in occupations other than agriculture each year amount to about 7 per cent of the total size of this population, or even more. As the population becomes predominantly urban and the movement out of agriculture declines in relative importance, as is bound to happen in these countries, this percentage will fall to about 5, as long as the over-all population growth rate remains at 3 per cent. Under favourable circumstances an abundant and youthfully adaptable labour force of this kind might be expected to be a very positive element for industrialization, and this seems to have been the case, in

some countries at least.<sup>35</sup> At present, however, the slowness in growth of new opportunities for productive employment, the widening gap between skill requirements in technologically advanced industries and the qualifications of the potential labour force, and wage rigidities that prevent ready absorption of low-productivity labour, mean that increasing unemployment and marginalization of the potentially active population are looked on as probably the most dangerous shortcoming in the trends of economic growth for the immediate future. This question will be discussed elsewhere and need not be treated further at this point.

It is obvious that even the most drastic reduction in fertility rates will not affect the rate of increase of the population in active ages for at least fifteen years, and can have only a secondary influence, compared to other factors bearing on the percentage of the population of active ages actually seeking work for several years after that. Any important decline in fertility would in all probability be accompanied by an increase in the proportion of women entering the labour force, and thus in the over-all pressure for expansion of employment.<sup>36</sup>

Discussion of the effects of employment on demographic change has centred on this last point. In the high-income industrialized countries, increased participation of women in the labour force has consistently been associated with declining fertility, and it seems logical that this should be so, whatever the cause-and-effect relationship. The few relevant studies that have been made in Latin America confirm the relationship for urban women, although not in a very pronounced way. Throughout Latin America female participation in the labour force is quite low compared to the coun-

<sup>35</sup> In Mexico, "el crecimiento industrial se ha visto favorecido por una oferta abundante y creciente de mano de obra provocada por el intenso proceso de migración de la población rural a zonas urbanas, lo que además ha facilitado que los salarios reales se mantuviesen en niveles relativamente bajos e incluso decrecieran durante un largo plazo (hasta 1956)". The abundant supply of cheap labour also favoured the expansion of commercial agriculture in previously unexploited zones, and the large-scale construction of roads and irrigation systems that supported this expansion. However, the acceleration of population growth also "complicó el proceso ayudando que el descenso de los salarios reales se prolongara por un tiempo probablemente mayor del necesario". (*Dinámica de la Población de México*, op. cit., pp. 216 and 249.)

<sup>36</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chapt. IV.

tries of Europe and North America. In most Latin American countries, fewer than 20 per cent of the women of working age (15-64) are active, rising to 25 per cent in the countries with relatively low fertility, while in Western Europe 43 per cent and in Eastern Europe nearly 60 per cent are active. The low rates of participation in such countries as Argentina and Uruguay, in which the burden of child care is no more important than in Europe as a hindrance to female labour, suggests that the slack over-all demand for labour (in combination with a probably declining cultural prejudice) keeps female participation low, and throughout Latin America this is sure to continue to be an important factor restricting any major impact on fertility. It has also been pointed out that the inhibiting relation exercised by female participation on fertility is probably limited to participation in the modern urban wage-earning activities. Increased participation in the traditional forms of agricultural labour, artisan-type activity, home piecework, and vending would probably have no effect. Employment of young women in domestic service presumably has some retarding effect on family formation by them, but domestic service seems fairly certain to account for a declining share of female participation in the labour force almost everywhere.

In the industrialized countries during the twentieth century fluctuations in fertility have increasingly been associated with major changes in levels of employment and economic security. Fertility rates dropped during the depression years of the 1930s and the subsequent years of war, then rose to unexpected heights, confounding previous predictions of low demographic increase, during the years of nearly full employment following the Second World War. Similar relationships might be expected in such countries as Argentina and Uruguay, but it seems probable that the depressive effects on fertility of unemployment and insecurity depend on the contrast with a previous period of relative prosperity. The high rates of unemployment and underemployment in Latin America, among populations mainly without previous experience of modern wage labour, and accompanied by uneven exposure to different features of modernization, have unprecedented traits that make it impossible to predict their impact, if any.

(d) *Saving*

Capacity for personal saving obviously should have a direct relationship with size of income

and—*ceteris paribus*—an inverse relationship at each income level with size of family. It has been argued that reduction of fertility would bring about significant increases in savings available for capital formation and thus contribute to more rapid development. In its application to Latin America, however, this argument needs to be carefully qualified and some observers go so far as to deny it any importance, largely because of the extremely uneven distribution of incomes and the association of low incomes with high fertility. The consumption levels of the low-income strata are so low that it might take at least two decades before any of the per capita income gains that may realistically be expected would permit them to make a significant contribution to personal savings. In other strata—which for the most part are already attaining moderate fertility—changing cultural and other influences on the propensity to save will probably be of greater importance than fertility changes. Moreover, the strong pressure towards new forms of consumption that is now evident means that the diversification of consumption would immediately absorb any relative improvement in income that might be achieved by reduction of fertility.

Such arguments, while valid up to a point, do not confront the real potential importance of lower fertility for the use of family income. The assertion that low-income families cannot save is exaggerated, although their savings may not take conventional forms or contribute directly to investment in productive equipment. The ability of urban low-income families to devote a substantial part of their incomes to housing, once they have the opportunity and some assurance of security in this investment, is an impressive example. The potential economic importance of a lesser burden of fertility in such families would lie in the opportunity of “investing” in improvement of the quality of their children as human resources. Whether this opportunity would be realized would depend on the choices made by the families in disposal of their incomes, and this in turn would depend on the traits of the future society and the kinds of consumption it stimulates. Present trends, with increasing strain exerted upon the incomes of all social strata to respond to the “modern” consumption appeals disseminated by the mass media, suggest that this strain may exert a depressive effect on the fertility of population strata that are beginning to enter the market for modern consumer goods, but that lower fertility may not be reflected either in

investable savings or in lines of consumption that really enhance the quality of the younger generation.

The pressures exerted by rapid population increase and urban concentration upon the capacity of the public sector to save and invest must also be taken into account. In the past, some of the countries have been able to maintain substantial rates of public investment in production and infrastructure only because most of the basic needs of the low-income strata—for education, housing, health care, incomes adequate for subsistence—could be ignored. This is no longer the case. As was stated above it would be unrealistic to expect that lower fertility and slower urbanization will bring about any alleviation of these pressures, but such demographic changes would help the public authorities to respond to them in a more meaningful way.

#### (e) *Land use and tenure*

In an isolated and static rural society, the main consequences of population increase for an indefinite period might be the gradual expansion of the area under cultivation or gradual impoverishment, depending on the availability of land. Both of these processes are visible in the rural zones of Latin America, but these zones are no longer isolated or static. Population increase combines with a number of other forces, inter-related but not all acting in the same direction, to make the pre-existing patterns of land tenure, cultivation, marketing, neighbourhood ties and urban-rural relationships less and less viable. In their present combinations, these forces point to widening disparities between rural population groups able to cope with change and the "marginalized" remainder, and increasing pressures on the State and the urban economy to absorb or subsidize the "superfluous" part of the rural labour force. The importance of the problem within the national picture of economic and social change, and the feasibility of policies to deal with it, are conditioned by the size of the country, the rate of population increase, and the degree of urbanization already reached, but the problem itself can be identified even in countries in which net rural population growth has fallen to zero and the urban population is in the majority.

In all of the types of countries distinguished in section 2(d) above, agricultural enterprises now have at their disposal a wide range of techniques for increasing production with a stationary or declining labour force, whether

or not they are economically or socially justified in using them. Subsistence production and local markets are declining in importance in relation to production for the national market, with consequent pressures towards rationalization of production and distribution. Rural non-agricultural sources of income tend to contract, although some new ones appear. Even the remoter rural zones are increasingly penetrated by influences that work against geographical immobility and passive acceptance of poverty: roads and cheap public transportation, mass communication media, public education and health services, and political appeals of urban origin. Within the range of present settlement patterns and forms of land tenure, the traditional *haciendas* and the minifundio settlements are both expelling excess population and absorbing little of the rural natural increase. The growing settlements of landless rural workers along the roadsides or on the fringes of the small towns demonstrate that an increasing share of the rural population finds no alternative to marginalized poverty. "Planned" agrarian reform and colonization settlements, which thus far account for a very small fraction of the rural population, do have the potentiality, if really vigorous agrarian reform policies are applied, of greatly increasing the capacity of agriculture to absorb labour productively and thus the capacity of rural areas to retain population. At best, however, this capacity has limitations. The new settlements will be able to offer incomes satisfactory to their members only if they restrict their numbers to those required for efficient operation and exercise selectivity. They cannot be expected to absorb the whole of the excess rural labour force, particularly the more marginal part of it.<sup>37</sup>

The forces at work, in their varying combinations, rule out the policy sometimes proposed, that most of the rural population increase should be retained in agricultural occupations until the urban economy becomes able to absorb productively the surplus rural labour force. Such policies could be applied only through rigidly authoritarian tactics that are neither practicable nor acceptable, or through an absolute lack of urban opportunities. The rural population would not even be able to maintain present levels of living, and these levels, sustained by primitive hand labour, are no longer acceptable to the rural masses, particularly the youth.

<sup>37</sup> For a fuller discussion of these questions see *Social Change and Social Development Policy in Latin America*, op. cit., chaps. III and VII.

(f) *Natural resources and space*

Except in a few of the smaller countries of Latin America, natural resource endowment does not stand in the way of the support of larger populations at levels of living higher than at present, if the investments needed to take advantage of the resources can be mobilized, although these resources are rarely well-balanced or easy of access. It can be affirmed that several internal regions require a larger population for the efficient exploitation of their resources for development. The difficulty lies in the high global rates of national population increase and in the use or misuse of natural resources associated with present trends of economic, social and technological change.

Present use of renewable natural resources, particularly land, is extremely wasteful and destructive. Although the traditional optimistic view that the Latin American resource endowment is inexhaustible is still influential, it is now obvious that this is very far from true and that resources are now being squandered at an alarming rate. The monopolization of land that is most accessible and best suited for cultivation by the *haciendas*, has compelled overuse of the poorer hillside lands by minifundio cultivators, followed by soil exhaustion, erosion, and destruction of forest cover. Similar patterns have been reproduced by squatter settlement and slash-and-burn cultivation in areas that are still very thinly populated. Some forms of modern plantation agriculture also produce exhaustion and abandonment of huge land areas. Lumbering operations and fires are destroying forests without any provision for replacement. Even the resources of the sea are being threatened by uncontrolled exploitation. While population pressure is speeding up the process of destruction, it is not the crucial factor. In many densely settled regions elsewhere, peasant agriculture has continued for centuries without serious damage to land resources, while in much of Latin America the destruction is greatest in thinly settled rural areas. Primitive systems of land use and systems that are technologically advanced and highly mechanized both contribute to the destruction. At both ends of the spectrum investment and the application of technology to land maintenance and improvement has been very small, compared either to such countries of peasant agriculture as China or to countries of modern "industrialized" agriculture, such as the United States. Reversal of the trend will require both large investments and a different approach to technological innovation. Bringing into use the

nearly empty regions of Latin America—which are still pointed to in "populationist" arguments—in a manner that will not insure their destruction will require particularly enormous and carefully planned investments.

Non-renewable natural resources (mainly petroleum and metal ores) are being exploited for export as intensively as markets and technological resources permit, because of their key role in supplying the foreign exchange needed to keep the economies going. It is likely that by the time a much larger and more industrially advanced population requires these resources for domestic use, some of them will be exhausted and others obtainable only at higher cost.

Urban concentration and the rising importance in the urban level of living of certain forms of consumption—durable goods, travel, etc.—generate per capita demands on natural resources much greater than in any past civilization, along with the increasingly ominous by-products of air and water pollution, noise, and enormous quantities of perishable and imperishable garbage that must be disposed of somewhere.

A peasant population can reach a high degree of density if the land is fertile and well cultivated, without insuperable strains on resources or social organization. Within narrower limits, urban populations can also reach considerable size as long as the majority accepts low levels of living, limited spatial mobility, and high density of settlement. To the extent that the income levels and aspirations of the population rise, so that they travel extensively within the urban area and outside, purchase durable consumer goods, demand houses with gardens, and take vacations at the seaside or other resort areas, the strains on natural resources, on available space, and on social organization rapidly increase.

The high-income countries are now struggling with problems of this kind and have encountered a recognized deterioration of certain aspects of living conditions that offsets the gains represented by higher consumption levels. The Latin American countries, especially the larger more dynamic and more urbanized countries, are now running into the same problems at much lower income levels and with much more limited capacity to resolve the resource and organizational problems. If private automobile ownership continues to expand at present rates, for example, the increasingly dispersed low density pattern or urbanization will

make the costs of highways and other infrastructural investment increasingly prohibitive; enormous quantities of agricultural land will be devoured by urban sprawl, urban air pollution will become gradually worse and rising consumption of gasoline might eventually curtail the export role of petroleum for some countries and place an increasing strain on the balance of payments of others that import petroleum products.

Calculations of the quantities of non-renewable resources that would be needed if the rest of the world were to begin to use these resources at the rate already reached by the United States demonstrate that this would be out of the question. The United States, with 6 per cent of the world population, consumes half the world production of the more important minerals.<sup>38</sup> It has been estimated that at the current United States consumption level, the world could support a population of only 500 million, compared to the present 3,000 millions and the 7,000 millions likely in the year 2000. This is only one of the factors calling into question the viability for Latin America of the present models for development offered by the high-income countries. The opportunities offered by new technologies for substitution of raw materials and sources of energy, for re-cycling of water and minerals and for permanent high-yield exploitation of land resources and the sea are a sufficient promise of capacity to support the inevitable larger populations, but the promise will not be realized without realistic measures for the husbanding of natural resources and the channelling of consumption along lines that will not generate insoluble future problems and that will be compatible with fair access by the whole of the population.

#### 4. Population policies

##### (a) Delimitation of population policy

Various Latin American political leaders have proposed population policies since the nineteenth century, and Governments have undertaken measures with the specific purpose of influencing population growth and distribution. It is only in the latter part of the 1960s, however, and in the context of changing and conflictive conceptions of the nature of the population problem, that the question has come to the fore of delimiting population policy and

<sup>38</sup> Stuart Mudd, ed., *The Population Crisis and the Use of World Resources* (Dr. W. Gunk, publishers, The Hague, 1964), p. 238.

determining its place within the continually widening range of interventions by the State in the economy and society. This task has faced an initial contradiction: the "population"—the human race—is the subject and object of all public policy. It would be possible, although not very useful, to subsume all social and economic development programmes under "population policy". At the same time, the range of activities open to the public sector for *direct* intervention in demographic change is narrow. The public activities that have the greatest actual or potential influence on demographic variables are governed mainly by policy considerations in which this influence is secondary or disregarded. Other important influences fall outside the scope of public policy, whether because of prevailing values or because practical difficulties rule out public intervention.

The contradiction has manifested itself, as several observers have pointed out, in policy formulations too broad to be operational juxtaposed with a nearly exclusive concentration of attention, both in polemics and in operational programmes, on "family planning" as a means of influencing the fertility variable.

The most ambitious attempt to formulate a definition was made by a Meeting on Population Policies in Relation to Development in Latin America, held in Caracas in September 1967,<sup>39</sup> following a Preparatory Seminar held in Washington, D.C. in March 1967:

"Debe entenderse por política de población el conjunto coherente de decisiones que conforman una estrategia racional adoptada por el sector público, de acuerdo a las necesidades y aspiraciones de la colectividad, para desarrollar, conservar y utilizar los recursos humanos, influyendo sobre la magnitud y el crecimiento probables de la población, su distribución por edades, la constitución y composición de las familias, la localización regional o rural-urbana de los habitantes, y la incorporación a la fuerza de trabajo y a la educación, con el fin de facilitar los objetivos del crecimiento económico y posibilitar la participación de la población

<sup>39</sup> This meeting was co-sponsored by the Organization of American States, the Pan American Health Organization, the Population Council, and the Aspen Institute for Humanistic Studies, with the collaboration of the Government of Venezuela. Ministers and other public functionaries from fifteen countries participated in their personal capacities, along with invited experts.

en las responsabilidades y beneficios del progreso.”

This definition has been subjected to a good deal of criticism,<sup>40</sup> and there is now wide consensus that a narrower definition is needed, limiting the scope of population policy to measures intended to influence population growth and distribution, with the proviso that such population policy must be integrated into an over-all development policy. Such a policy should seek, first, an adequate understanding of the implications of these demographic variables and the constraints they impose on the other areas of development policy, and, second, means of compatibilization and mutual support among the whole range of measures affecting these variables. The proviso points in the right direction for the future, but does not show how to solve the main immediate problems:

(1) In spite of a decade of development planning experiences, hardly any of the countries as yet have authentic, coherent and functioning development policies or strategies capable of providing the needed frame of reference for policies of demographic rationalization. As long as social and economic policy remains fragmented and sectoral, determined in large part by the relative strength of pressures from professional and bureaucratic groups, electoral clientele, and the external sources of financial aid and technical co-operation, with the more specific programmes and regulations even within sectoral policy areas often conflicting directly in their import, it can hardly be

<sup>40</sup> “Se torna difícil in estas circunstancias trazar una clara línea divisoria entre política de población y política económica y social, en general. Es esta dificultad la que debe haber llevado a los redactores de la definición de política de población que se adoptó en una reciente conferencia, a darle al término una acepción tan amplia que prácticamente quedaron englobados dentro de ella todos los objetivos del desarrollo.” (Carmen A. Miró, “Política de Población: ¿Qué? ¿Por qué? ¿Para qué? ¿Cómo?”.) [The revision of the definition proposed by the Preparatory Seminar] “se produjo mediante supresiones, sustituciones y adiciones que reflejan claramente el ‘tira y afloja’ de las distintas posiciones en juego. El resultado es la típica definición que deja contentos a todos, pero que resulta inoperante tanto para un análisis teórico, como para una orientación de la acción política.” (Gerardo González C., “Políticas de Población y Marginalidad Social”). “Un ejemplo de esta confusión está constituido por lo que planteó como objetivos de una política de población el informe final . . . Si, en efecto, quisiera incluirse en lo poblacional todo aquello que tiene consecuencias en la población o de ella se deriva, tendrían que enumerarse todos los sectores o aspectos que constituyen una sociedad.” (Roger Vekemans, s.j. “Política de Población: Esbozo de Status Quaestionis”, DESAL, Santiago de Chile, Agosto de 1970.)

expected that whatever activities are grouped under population policy can avoid taking on similar traits. In this respect, the problems of delimiting and formulating population policies resemble those faced by all of the broad inter-sectoral middle-range objectives that have been advanced as essential to development, such as income redistribution and human resources policy.<sup>41</sup>

(2) Demographers are not yet in a position to offer the public authorities incontrovertible advice on the inter-relationships between demographic change and development, or on the full long-term consequences of the measures that can be taken. This deficiency, like similar deficiencies in the other inter-sectoral policy areas, derives only partly from the dearth of basic research; the inter-relationships and consequences depend on prior definition of the patterns of development aspired to within specific types of countries. The character of the information needed on such topics as population redistribution, urbanization, occupation, and family structures also depends on the formulation of clear demands by development policy makers.

(3) The dependence of future demographic change on trends and policies in employment, education, income levels and distribution, and technological innovations of many kinds, means that the measures governed primarily by population policy considerations will always have a secondary or auxiliary role—although this may be of considerable importance—within the over-all picture of influences on the demographic variables. Policies in all of these areas should take population objectives into account—once these are clearly formulated—and should make much fuller use than heretofore of the light that demographic analysis can throw on the feasibility of their targets and techniques, but in the definition of these policies other considerations, as important as their demographic consequences or more so, have to be taken into account. The potentially important area of policy for strengthening of the family, which now exists only in the form of small-scale and unco-ordinated initiatives, is bound to be much influenced by the dissemination of “family planning” in the narrow sense, but even here demographic objectives will have to be subordinated to objectives

<sup>41</sup> See *Social Change and Social Development Policy in Latin America*, op. cit., chaps. X and XI. Carmen A. Miró, op. cit., lays particular stress on the need for, and present lack of, development policies into which population policies can be integrated.

deriving from conceptions of human rights and the developmental role of the family. Policies affecting the geographical distribution of the population, which even the more restricted definitions bring within the scope of population policy, are in practice more likely to be dealt with in the context of regional development, urban development and rural development policy.

(b) *Conceptions and ideologies concerning the role of population in Latin American development*

Several historical stages can be identified in predominant Latin American attitudes toward population, each associated with determined economic and social patterns, forms of interdependence with the rest of the world, and conceptions of the sources of national progress.

(1) From the time of independence in the early nineteenth century up to the 1920s: national progress and power were identified with rapid increase and "Europeanization" of the population. This predominant ideology (which encountered varying degrees of resistance from nationalist or nativist currents of opinion) was associated with economies almost entirely oriented towards raw material exports and with the domination of landowning-commercial *élites* convinced of the ethnic inferiority of the masses of the population. Populations during this period were very small in relation to territory, rates of natural increase were low, and urbanization limited. European migrants were available in large numbers and the countries able to attract them forged ahead of the rest of the region economically in political stability; population increase through immigration meant that most of the increment could be incorporated directly into the labour force, at the modest skill levels called for by existing systems of production, the costs of up-bringing having been met by the country of origin.

(2) From the 1920s to the 1960s: the desirability of rapid population increase continued unquestioned, but a higher valuation was placed on the native population and more stress was placed on the need to raise its quality through education and other social measures. Accelerating urbanization was looked on with optimism as a stimulus to development through concentration of consumer demand and occupational skills. These views were associated with rising nationalism and the defence of indigenous against European and North American cultural traits; with a rapid growth of politi-

cally articulate urban middle strata; with a partial drying up of the preferred sources of migration; that coincided during the 1930s with economic depression, urban unemployment, and legal restrictions on immigration; with a change from the export-oriented economic patterns towards the growth (particularly during the 1940s and 1950s) of import substitution industries offering new job opportunities in the cities; and with a widening acceptance of development policies relying on industrialization, international financial and technical co-operation, Latin American integration, formal long-term planning, and socio-economic structural reforms.

(3) From the early 1960s to the present: interpretations of the role of population change have become increasingly divergent, conflictive and ideologically charged. This stage is associated with partial frustration of the hopes invested in the global development policies current throughout the decade; with acceleration of the increase in numbers of persons annually reaching working age, as a result of the speeding up of population growth since the 1940s; with the rapidly increasing visibility and scope of the problems of urban marginality, structural unemployment and under-utilization of human resources; with the widening gap between aspirations for social services and realizations; with the increasingly complex impact of technological and organizational innovations and consumption appeals originating in the high-income industrialized countries; with growing technical capacity for direct action on some components of demographic growth; and with the relatively sudden extension to Latin America of a world-wide campaign insisting on the catastrophic consequences of continued population expansion and on family planning as the only remedy.

At the present state, while the previous optimistic views and the traditional identification of national power with population size continue current and influential, several newer positions can be distinguished, each with a number of variants:

(1) Important sectors of opinion continue to envisage "development" as primarily the attainment of higher rates of increase in production and consumption, so as to close the gap between present levels and those of the typical North American or European country, and to assume that this can be done if the development and structural reform policies agreed upon during the past decade are applied more vigorously, and if international co-opera-

tion in trade and financial aid becomes more generous and more dependable. From this point of view, the absorption of the urban marginal population—and the underemployed rural population that feeds its growth—into productive employment and full participation in the social order depends primarily on the attainment of a high rate of economic growth. Any effective measure reducing the rate of growth of the population strata exposed to marginalization or reducing the rate of migration of these strata towards the cities alleviates the pressures for non-productive use of public resources, reduces the likelihood of violence, and gives the national authorities more time and greater flexibility in assigning resources to high-priority developmental tasks. The opponents of this point of view commonly caricature it as an advocacy of population control as an *alternative* to accelerated development, but it is improbable that anyone thinks in these terms.

(2) At the other extreme it is asserted that a strategy of development based on the premises summarized above would, even if feasible, produce nothing more than an unjust and unacceptable pseudo-development, perpetuating a noxious situation of dependency. It is inferred that authentic development will be possible only after revolutionary transformation of existing power structures and a breaking of the bonds of dependence. From this point of view, the dependent system of economic growth generates the growth of the marginal population by its very nature, and this constitutes one of the contradictions that will eventually bring about the breakdown of the system. Under present conditions, any measures of population control, if effective, would alleviate tensions and thus prolong the survival of economic and social structures that should disappear as soon as possible to make way for the building of a new social order. This position can easily be caricatured as an advocacy of increasing social pressures for the sake of provoking immediate changes. In some of its manifestations it does seem to involve a certain insensitivity to the immediate needs of the low-income strata, as well as a high degree of optimism concerning later capacity to meet these needs.

(3) A third point of view stresses the human welfare implications of rapid population growth and the right of the family to have access to means of limiting the number of children, irrespective of the implications for development and of public policy concerning population increase. This point of view is compatible

with almost any interpretation of the development process and its requisites, but is commonly accompanied by a degree of scepticism concerning the ability of the public authorities to apply population policies based on the more ambitious developmental conceptions, and a willingness to settle for fragmentary measures responding to the immediate needs of families. Some advocates of this position limit their support to a certain range of family planning techniques considered morally legitimate, while others are prepared to support the free availability of abortion and other means.

(4) A fourth point of view, more complex and hard to summarize, accepts the human rights argument and also considers lower rates of population increase highly desirable for all the Latin American countries that have not yet undergone a demographic transition, whatever their future pattern of development. At the same time, the holders of this point of view feel that both the developmental urgency and the appropriate content of policies for demographic rationalization differ widely according to the circumstances of specific countries, that the relevance of such policies to the alleviation of pressures arising from marginalization is questionable, whether such alleviation is viewed as desirable or not, and that the capacity of the State to control population growth during the foreseeable future through the techniques now being advocated will probably be of much less importance than the changes in family life and cultural attitudes brought about by ongoing social and economic changes. This point of view accepts as partly valid the assertion that present campaigns for population control derive from determined conceptions of dependent development and are designed to facilitate the survival, with whatever reforms and improvements, of present economic and social structures. It does not accept the inference that such expectations constitute sufficient reasons to support or reject the policies themselves, or take for granted that the results of the policies will necessarily correspond to the expectations of their sponsors. It assumes that in the short term, the developmental effects of such policies will be limited and more important for the welfare of families than for the resource allocation problems faced by the State, but that attention cannot be limited to the short term.

(5) Yet another position might be distinguished among some proponents of development policies and analysts of social change: to ignore the population problem altogether or

to deny its importance, with the conscious or unconscious aim of minimizing any distraction of public attention from problem areas believed to be more urgent and more manipulable.

In the prolonged polemic over population policy, many intermediate positions can be distinguished, and often the ideological basis of a given position is not made explicit. Public declarations on population policy tend to be phrased in terms intended to disarm attack or avoid stirring up political or religious sensitivities, and the strong terms in which the urgency of the problem is stated contrast with the ambiguity of the recommendations. Meanwhile, the unofficial polemics tend to remain a dialogue of the deaf, in which the parties refute their own caricatured version of the opposing position, or the supposedly unacceptable motives of its proponents, particularly when the strong support given by certain powers outside Latin America to determined population policies comes under discussion. The position taken by the main external source of development aid and advice has produced, on the one hand, a sometimes grudging acceptance of population control as one item in a "package" of policies expected to obtain financial aid, and, on the other hand, an automatic rejection of the desirability of control in the sectors of opinion preoccupied with dependence.

### (c) Governmental policies and attitudes

Depending on the definition adopted, it can be affirmed that no country in Latin America has a population policy or that practically all of them do. Two Presidents of Latin American countries (Colombia and the Dominican Republic) and two Prime Ministers of Caribbean countries (Barbados, Trinidad and Tobago) signed the 1967 Declaration of Chiefs of State on the Population Problem, which combined a strong affirmation of the danger of rapid population increase with exclusive support of family planning as the remedy. In about half the countries, Chiefs of State or Ministers have made public statements since 1967 affirming or denying the desirability of lower rates of population increase. With some countries, leading public officials have expressed widely divergent views on population objectives.<sup>42</sup>

<sup>42</sup> In Brazil, in 1969, "de cuatro discursos de gobierno, tres fueron favorables a una política demográfica restrictiva y uno fue en favor de la política expansionista". (Glycon de Paiva, "Política Demográfica para el Brasil — Dificultades para Establecerla"). See also Rubens Vaz da Costa (Presidente del Banco de Nordeste do Brasil), "El Crecimiento de la

Only one Government, that of Colombia, has incorporated broad population policy criteria and objectives (based on the Caracas Conference definition) into its most recent development plan, presented to Congress for approval at the end of 1969<sup>43</sup>. No Government has as yet fixed quantitative objectives for changes in the demographic variables.<sup>44</sup>

Población y el Desarrollo Económico: El Caso Brasileño", *Boletín de Población*, vol. II, No. 3 (Mayo 1970).

<sup>43</sup> The bases for the Colombian population policy are the following:

#### "a) Criterios:

- "1. El Estado debe intervenir con el establecimiento de una política, en cuanto el bien del conjunto social está comprometido, tanto a nivel macro-económico, como a nivel de la familia y del individuo, pero respetando sus derechos e intimidad.
- "2. La política de población se considera como un componente indispensable de la política general de desarrollo y por lo tanto se da énfasis a la educación integral.

#### "b) Objetivos:

"Dos son los objetivos inmediatos: lograr una mejor distribución territorial de la población y modificar el actual ritmo de crecimiento de la población por medio de una reducción de la fecundidad. Con relación al segundo objetivo de reducción del crecimiento de la población, por medio de una disminución de la fecundidad, la política contempla los dos niveles, el macro-social y el familiar; uno y otro dentro de un enfoque educativo hacia la responsabilidad. A nivel de la sociedad el Estado ha lanzado una amplia campaña socio-cultural en favor de la Paternidad Responsable por medio de la ley 75 de 1968.

"Se busca reducir la ilegitimidad, aliviando así en parte el problema demográfico.

"Al nivel del individuo y de la familia y como tarea propia del Ministerio de Salud Pública se prevea, dentro de los programas materno-infantiles, el suministro de la información y los servicios médicos de planificación familiar, tarea que cumplen igualmente el Instituto Colombiano de Seguros Sociales y la Caja Nacional de Previsión Social."

(Gustavo Pérez Ramírez, "La Política de Población en Colombia, al Término de la Década del 60", citing Departamento Nacional de Planeación, "Planes y Programas de Desarrollo 1969/72, Capítulo I".)

<sup>44</sup> Quantitative targets for reductions in fertility rates have been cited for a few Caribbean countries. (María L. García, "Informe sobre el estado de los programas de planificación familiar en América Latina 1968," CELADE Serie A, No. 97.) These targets, however, seem to have been formulated by the family planning programmes for administrative purposes to show expected results of coverage of a target number of families, and have no official standing as policy objectives.

When one descends from the level of policy declarations to examine what has actually been done, in the name of population policy or otherwise, the differences between national positions become less evident. The practical policy has been one of *laissez faire*, combined with varying degrees of public support for family planning activities. Migration policy, once the only active component in national population policies, has received very little attention in recent years, except in the Caribbean countries, so that, in practice, population policy has become increasingly equated with receptivity to family planning. The process has been recently described and justified as follows:

“Los primeros pasos casi siempre fueron dados por iniciativa privada o entidades del mismo carácter que, generalmente se crearon específicamente para el fin con apoyo económico de organismos internacionales, sin encontrar mayor oposición de los Gobiernos respectivos. Y esto, de no oponerse y dejar para ver las reacciones, no deja de ser una política bastante prudente, dadas las circunstancias. A medida que los servicios y programas privados fueron demostrando que tenían aceptación y que cumplían una necesidad no ofrecida por los gobiernos o autoridades gubernamentales, éstas fueron, poco a poco, y con grandes temores . . . entrando a participar con la bandera de que el Estado debía ejercer control en una actividad que debía ser mirada con sumo cuidado por las implicancias médicas, sociales, económicas y morales que podía tener. Todo esto parecería confirmar las apreciaciones precedentes en el sentido de que ha habido y sigue habiendo temor a la definición abierta y franca, en muchos casos no por falta de convicción en las bondades del programa, sino por el posible mal uso que sectores de oposición gubernamental podrían hacer de estas medidas para criticarlas y atacarlas sin tener, generalmente, elementos de juicio suficientes ni para justificar ni para rechazar estas políticas.”<sup>45</sup>

Both the *laissez faire* approach and the identification of population policy with family planning have been criticized from several quite different points of view:

(1) It is argued that the attainment of a zero population growth rate in the shortest possible time is essential and that family planning, as now defined and practised, is an

<sup>45</sup> Carlos A. Uriarte, “Información sobre la Situación de las Políticas”, Seminario sobre Política de Población, Caracas, 25-28 Agosto de 1970.

ineffective means to this end, diverting attention from the need for more drastic measures of control. This point of view has hardly been represented at all in Latin America as yet, but has been advanced forcefully by Kingsley Davis and others, with reference to the world as a whole, including the countries that now have relatively low rates of increase.<sup>46</sup>

(2) It is argued that population control is undesirable, that family planning is an all too effective means of accomplishing it, and that the way in which family planning is being introduced in Latin America means that the national authorities are abdicating control over national policy in favour of international organizations and Governments acting for the furtherance of their own interests.

(3) It is argued that the demographic trends themselves, and the probable influence on them of the rapid expansion of family planning activities have implications for future development that policy makers and development planners cannot afford to continue to neglect. This point of view takes it for granted that policy should not be limited to population control or to family planning, but that family planning is a desirable form of sectoral action within a broader policy.<sup>47</sup>

<sup>46</sup> Kingsley Davis, “Política de Población: ¿Tendrán Exito los Programas Actuales?”, *Demografía y Economía*, No. 8, 1969. (Original English version published in *Science*, 10 November 1967.) The same arguments were reiterated in a paper presented to the 1970 Latin American Regional Conference on Population: “Orígenes de las Deficiencias de los Programas de Población Modernos”.

<sup>47</sup> “Para aproximarnos a lo que proponemos definir como política de población, podemos comenzar por descartar lo que nosotros, numerosos latinoamericanos y, sorprendentemente, algunos norteamericanos creemos que *no* es. Nos referimos, claro está, a las acciones de planificación familiar que en la actualidad se desarrollan en todos los países latinoamericanos. Estas acciones las descalificamos como política de población, aun en el caso que se dieran — cosa que aún no ocurre en ningún país de la región — dentro de un plan coherente, como parte de una política de salud . . . la planificación familiar se convierte en uno de los elementos a ser considerados dentro de una política de población . . . Es por esto que consideramos altamente negativa la posición que, en general, han adoptado en América Latina los encargados de la planificación económica y social de ignorar — no evaluando los efectos tanto demográficos como económicos — las acciones de planificación familiar que se llevan adelante en todos los países de la región. Esta actitud de avestruz puede reservar grandes sorpresas en plazos relativamente cortos. Compilaciones hechas por el Centro Latinoamericano de Demografía (CELADE), que indudablemente reflejan de manera incompleta lo que ocurre en la realidad, revelan que a fines de 1969 existían en la región más de 1.000 clínicas anticonceptivas, de las cuales el 72 por ciento operaba en servicios gubernamenta-

(d) *Objectives and instruments of a population policy*

The preceding discussion indicates that public activities intended to influence demographic variables will not wait upon the formulation of development policies capable of serving as a framework and that nothing is gained by defining population policy so broadly as to make it co-extensive with development

les. El número de clínicas existentes a fines de ese año representó un aumento de 43 por ciento sobre las que se encontraban en funcionamiento a fines de 1968." (Carmen A. Miró, "Política de Población: ¿Qué? ¿Por qué? ¿Para qué? ¿Cómo?")

This source cites the notable decline in the Chilean birth rate during the 1960s as evidence of the effects of a family planning programme, embarked upon within the public health service and without any overt population control objectives. The same evidence has been presented by an authority on family planning both to refute Kingsley Davis and to argue in favour of the *laissez faire* approach: "Con sigilo o o sin estridencias, por lo menos, debería iniciar el programa, limitándose a poner los métodos anti-conceptivos al alcance fácil . . . de las personas que quieran emplearlos. Son tantas que, en las fases iniciales, cabe prescindir de toda motivación y, particularmente, de la educación de masa que está erizada de peligro. Es ella la que despierta antagonismo. Por sí sola esa acción pone en evidencia e incita la demanda social de regulación. Llega a hacerse tan incontenible como para que no se atreven a contrariarla la Iglesia ni los políticos. A esta altura procede quizá pedir un pronunciamiento del Gobierno y, en todo caso, impulsar la educación y la motivación. . . . Dada la prodigalidad relativa de la ayuda internacional — que suele ser forzoso disimular en cierto grado — no son de temer, por el momento, las estrecheces de recursos monetarios." (Hernán Romero, "América Latina, Chile y las Políticas de Población".) José Vera, "Población y Desarrollo: Notas para una Política de Población en América Latina", places a somewhat different emphasis on the place of family planning in development policy and its justifications: "En resumen, una política de población para América Latina debería incluir dos tipos básicos de acción: (a) programas educativos y, en casos extremos, de subsidios, destinados a proveer acceso real a la oportunidad de decidir conscientemente sobre el tamaño de sus familias a aquellas parejas que puedan verse afectadas por situaciones de desequilibrio demográfico; y, (b) reorientación de los programas nacionales de desarrollo en función del empleo pleno de la fuerza de trabajo. Es probable que una combinación adecuada de estos dos tipos de acción en América Latina contribuya al cumplimiento simultáneo de varios fines útiles: (a) aliviar el sufrimiento de millones de familias a las cuales el progreso de las técnicas de la salud ha otorgado el obsequio de una menor mortalidad, rápidamente negada en la práctica por el retraso de los restantes componentes del nivel de vida; (b) incrementar la racionalidad y en más de un sentido "humanizar" la planificación del desarrollo, mediante el simple expediente de organizarla en función del desarrollo de los seres humanos antes que de las cosas que los rodean y sirven y, (c) consolidar la obsolescencia de la idea de que la abundancia de recursos humanos en una sociedad puede ser la causa de su subdesarrollo."

policy. Under present conditions, population policy must aim at the reconciliation of three broad objectives: (1) to contribute to the enhancement of human welfare and human rights at the level of the family and individual; (2) to influence population growth, age distribution and geographical distribution so as to make them as compatible as possible with accelerated development and with more equitable distribution of the fruits of development; (3) to enhance understanding of demographic trends among political leaders, planners, and the public in general, and to ensure that these trends are more adequately taken into account in all areas of policy and planning. It has already been indicated that the range of instruments at hand for these purposes is narrow, and that the inclusion within population policy of many of the instruments theoretically applicable is ruled out by prevailing values or by the subjection of these instruments to other purposes.

(i) *Instruments intended to enhance family welfare and act on the rate of population increase through the fertility variable.* "Family planning" has come to mean education in the advantages of spacing and limiting the number of children combined with demonstration of contraceptive techniques and supply of contraceptives, generally within public health programmes and directed almost exclusively to the female partners in regularly constituted families. Ideally public policy should reflect a broader interpretation of the term, and enhanced ability to plan the number of children should be combined with enhanced ability by the family to plan for the livelihood, consumption, housing, education and participation in local and national community life of its members. Alleviation of the burden represented by uncontrolled fertility can strengthen family capacity to exercise foresight in other areas but does not guarantee it. This consideration, however, points to problems of public capacity to apply a broader family policy, and of the compatibility of social and economic structures with a more participatory role by the low-income family, that are too complex to be discussed here.

Even in its present narrow interpretation, family planning is better suited to the enhancement of human rights and family welfare than to demographic rationalization. For the latter purpose, its effects are hard to predict, as the differing opinions of specialists cited above indicate, but whatever the effects, they will be irreversible and hardly manipulable in terms of any short or medium-term quantitative objec-

tives that public policy might set. The effects will derive from the aggregate decisions of millions of families, or simply of the women. A decision by the State to curtail family planning services on the basis of a judgement that population increase is shrinking too rapidly would be unacceptable in terms of the human rights justification of the programmes, and in any case would be ineffective, except in relation to the families too poor or too lacking in initiative to seek private sources of contraceptives.<sup>48</sup>

Present family planning programmes in Latin America depend almost exclusively on two contraceptive techniques: the "pill" and the IUD. Both have advantages over earlier techniques, particularly for mass application, but neither is entirely satisfactory, and very great changes in contraceptive technology can be expected during the coming decade. It should be kept in mind that family planning programmes account for only a part, and generally a minor part, of the use of contraceptive techniques in the cities. The CELADE investigations among urban women 20-50 years of age, married or "convivientes", carried out in late 1963 and early 1964 revealed the following percentages using some contraceptive technique: Buenos Aires 84.5, Rio de Janeiro 38.2, Bogotá 36.6, San José 56.8, Panamá 30.7, Caracas 62.4 and Mexico 30.8. At that time, the IUD had not yet been introduced, use of oral contraceptives was only beginning, and family planning services in the cities were either non-existent or of very limited scope. Private practice of contraception is by now undoubtedly much more extensive, and has shifted towards more dependable techniques.

In the polemic over population policy well-known assertions that expenditures on family planning, considered as developmental investments, have a yield many times greater than other investments have been flatly contradicted by assertions that the resources devoted to family planning would be much better used on directly productive investments. There is practically no information, however, on the total sums devoted to family planning in Latin American countries, on the extent to which

<sup>48</sup> In Chile the National Health Service has fixed a maximum quota for installation of IUDs of 15 per cent of women in the fertile age groups (100 per cent of women hospitalized because of induced abortions, 40 per cent of women giving birth in the hospitals, 10 per cent of other women). This quota seems to have been motivated in part by uneasiness over the rate of decline in the Chilean birth rate, and to have led to curtailment of family planning services in some hospitals once their quota had been passed.

resources used for family planning are of a kind convertible to other purposes, on costs per client, or on costs of "avoiding" a birth.<sup>49</sup> At present, a high proportion of the direct costs are met from external sources that would not be prepared to provide the same funds for other purposes,<sup>50</sup> and a high proportion of the infrastructural and personnel costs are indistinguishable from the over-all costs of the health services sponsoring the family planning programmes. As long as the programmes simply respond to demand it does not seem that per capita costs need be very high; to the

<sup>49</sup> One source estimates the cost of avoiding each birth (medical, educational and organizational costs of a family planning programme) at 10 dollars, and the annual cost for Latin America as a whole of avoiding 2,000,000 births, sufficient to bring the rate of population increase down from 2.9 per cent in 1970 to 2.3 per cent in 1980 at 20 million dollars. The basis for the 10 dollar estimate is not stated. (W. Brand, "Política de Población para América Latina".) The cost of "protection" of a couple for one year has recently been calculated at 6.95 dollars for Chile; similar calculations for Asian countries reach lower figures, the differences being roughly proportional to differences in per capita incomes. (Warren Robinson, *A Cost-Effectiveness Analysis of Selected National Family Programmes*, cited in Bernard Berelson, "The present state of family planning programs", *Studies in Family Planning*, 57, September 1970.) Calculations have also been made of the actual and potential private market for oral contraceptives in Mexico. It is estimated that 3 million families (representing about 4.5 million "eligible" women) have expenditures over 1,000 pesos (80 dollars) per month and that 2 per cent of this expenditure would be sufficient to provide oral contraceptives at existing market prices of 10-20 pesos per monthly cycle. At present sales levels, about 11 per cent of this potential market is realized (5.4 cycles distributed in 1968 per 100 women aged 15-44). Alfred D. Sollins, "Commercial production and distribution of contraceptives". *Reports on Population/Family Planning*, No. 4 (June 1970).

<sup>50</sup> USAID obligations for population and family planning activities in the Latin American region, channelled through various public and private organizations, rose from 2,324,000 dollars in 1967 to 7,924,656 dollars in 1968. The Ford Foundation, up to the beginning of October 1968 had granted about 4 million dollars to Latin American institutions for research and training related to population. Other Governments outside the region, as well as other foundations, have provided smaller sums. (Agency for International Development, The Office of the War on Hunger, Population Service, *Population Program Assistance*, Washington, D.C., September 1968.) Foreign aid funds allocated by the United States Congress exclusively for population and family planning activities in the world as a whole outside the United States amounted to 50 million dollars for 1969, 75 million for 1970, and 100 million for 1971, or about 2.3 per cent of official United States aid to less-developed countries for the fiscal year 1970. (Philander P. Claxton Jr. "La Política de los Estados Unidos respecto de los Asuntos de Población y Planificación Familiar".)

extent to which educational campaigns and extension to the rural population are envisaged, such costs would inevitably rise. Even if the opportunity to use earmarked external funds disappears, or is rejected as incompatible with national control over the programmes, it does not appear probable that the costs of family planning programmes expanding at a judicious rate in response to demand would require a really serious diversion of public resources from other developmental purposes. At the same time, such programmes cannot expect an overriding priority in the competition for public funds, and they are likely to share the vulnerability of all the newer social and economic programmes to budgetary cuts when public resources fall below expectations.

It is well known that up to the present abortion has been the most widely used means of fertility limitation in the Latin American urban population, as in many other parts of the world. Reliable statistics are naturally lacking, since the only abortions coming to public attention are the failures requiring intervention by the public health services, but recourse to abortion seems to be widespread among all social strata. According to the 1963-1964 CELADE investigations the percentage of women admitting to one or more induced abortions reached 10.3 in Rio de Janeiro, 8.0 in Buenos Aires, and 7.1 in Mexico. Among the upper and middle strata it probably serves mainly as a last resort when contraception fails, but among the poorer strata it is the principal means used. Up to the present no important sector of opinion in Latin America has proposed legalized abortion as a legitimate means of family planning or population control. On the contrary, many of the initial family planning programmes have been justified primarily as a means of relieving women of the need to resort to abortion.

Whether this rejection will prevail permanently is problematic, in spite of the strong religious sentiments behind it, in view of the wide acceptance of abortion by the women themselves and the trend toward legalization of abortion in the rest of the world. The danger to the health of the pregnant women practically disappears when the operation is carried out in a clinic and new techniques promise to make the operation increasingly simple and inexpensive. The legal prohibition of abortion, as long as it cannot be effectively enforced, has justifiably been criticized as a form of discrimination against the poor. Women who can pay high fees can obtain abortions under safe con-

ditions. The remainder also obtain abortions when they want them, but under conditions that produce an appalling amount of suffering and sickness, and many avoidable deaths. The main remaining objections are that abortion, as a recourse that does not call for foresight, contributes nothing to responsible parenthood and the developmentally favourable attitudes supposed to be associated with family planning; also, that the woman depending on this alone might have to resort to it very frequently.<sup>51</sup> As the use of contraceptives continues to spread, the main role of abortion, whether legally or illegally, will probably come to be the repairing of contraceptive failures and the avoiding of consequences of casual sexual unions.

Sterilization has become an important technique of family planning programmes in India and Pakistan (mainly of men) and in Puerto Rico (mainly of women); in parts of the former countries payments are offered to persons submitting to sterilization. In the Latin American family planning programmes sterilization has been little used. Since it is normally offered to and accepted by only persons who have already produced all the children they want, its role in fertility reduction can be no more than supplementary to contraception.<sup>52</sup>

The nearly universal affirmation of the right of the family to determine the number and spacing of children, and the more qualified affirmation of the duty of the State to offer effective means for the family to act on its decision, leaves open the delicate question of the legitimacy of State activities to influence the family's decision, once the State has adopted objectives concerning population in-

<sup>51</sup> "Tengo reservas respecto a su legalización. Entre ellas destacan el fatalismo de nuestra gente que prefiere afrontar el hecho consumado a tomar medidas preventivas y que, a poco de interrumpido el embarazo, la mujer recupera, de ordinario, su fecundidad. Podría producirse así una cadena sin fin inconveniente por sí misma y muy gravosa para nuestros servicios de atención médica." (Hernán Romero, *op. cit.*)

<sup>52</sup> According to the 1963-1964 CELADE investigation the percentage of women in the larger cities who have undergone sterilization, although small, is not negligible: about 6 per cent in Caracas, Rio de Janeiro and San José; 2 per cent in Mexico City, 1 per cent in Bogotá. Panama, however, is an exception: according to a recent study 20 per cent of the women in the conjugal unions surveyed had been sterilized. The effect of sterilization has been estimated at an average reduction of 25 per cent in the aggregate fertility of all women in conjugal union. See Robert B. Hartford and George C. Myers, *Esterilización femenina en la ciudad de Panamá, su difusión, efectos y correlativos.*

crease. Compulsion can be ruled out on practical grounds as well as moral considerations; it is hard to imagine the public authorities anywhere in Latin America invoking penal sanctions against parents, let alone compulsory abortion.<sup>53</sup> In principle, persuasive and dissuasive measures would be legitimate. The State already intervenes in many ways in the affairs of the family, through educational laws; social security provisions; and taxes, subsidies, etc. designed to promote, regulate, or discourage different forms of consumption and saving. It would be illogical to expect reproductive patterns, once these are conceived to be matters of importance to the society as a whole, to be left to the judgement of the family without any attempt at public influence on the decision. In practice, many present family planning programmes within public health services rely on a strong persuasive influence on the woman when she is most likely to be open to such influence—immediately after having given birth.

Various sources have proposed a wide range of measures intended to influence reproductive behaviour short of compulsion.<sup>54</sup> In the specific circumstances of the Latin American countries, however, practically all of them seem to be either of very minor importance, unacceptable in terms of values, inapplicable, or excessively expensive. Proposals to do away with legal relics of past policies favouring large families, such as prizes to women having more than a given number of children and laws prohibiting contraceptive sales and advice, are sensible but not very important. Proposals to do away with income tax exemptions for dependent children would affect only the upper-income minorities paying such taxes, who already control their fertility. Proposals for punitive taxation on

<sup>53</sup> Penal sanctions and compulsory abortion have been seriously proposed to combat illegitimate births, as the least desirable contributions to the birth rate, but even here such sanctions would be neither enforceable nor socially tolerable.

<sup>54</sup> A leading authority on family planning, after summarizing proposals put forward or adopted in various countries outside Latin America, comments: ". . . not only are there ethical issues . . . and political problems, but the practical problems are enormous. As has been said, if a country could administer such complex systems for demographic ends, it probably would not need to do so in the first place. . . . It is, I think, fair to say that the field has been diligently looking for something to do 'beyond family planning', something practicable and ethical, economic, and with some chance of effectiveness, even on an experimental or demonstration basis. On the whole we have not found it, and we continue our search". (Bernard Berelson, *op. cit.*)

families having more than a given number of children would, if enforceable, have a disastrous effect on the living conditions of children already born to low-income families, without any guarantee of bringing about a significant reduction in future fertility. In any case, such taxation would be completely unenforceable among the urban marginal population, the rural population, or the unwed mothers. Proposals to raise the minimum legal age for marriage or to promote late marriages by tax advantages to bachelors would in all probability have no effect on the reproductive behavior of the strata now characterized by very high fertility, in the absence of cultural changes bringing the age of initiation of sexual relations into correspondence with the minimum age for marriage. In other strata, the effect on fertility would be of small importance, since with contraception generally practised and relatively clear objectives for family size, births would be postponed rather than avoided. The provision of public payments for late marriage or for the spacing of children within marriage would be hard to administer, expensive, and unpopular. Universalization of retirement pensions and other benefits, so as to eliminate the "social security" incentive of having many children for support in old age, could not be financed through a contributory system, at the present income levels of the strata most in need of such security, and would be far beyond the financial capacity of the State. In any case, the relevance of such a measure to reproductive behaviour is questionable, however desirable it might be for other reasons. Publicly financed mass propaganda campaigns in support of family planning might be justifiable under certain circumstances; if preceded by a broad public debate leading to a sufficient degree of consensus on the nature of the population problem and its policy implications; and if informed by a more adequate understanding of the motivations of reproductive behaviour in different social strata than now obtains. Otherwise, such a campaign might be self-defeating in terms of the resistances aroused.

To sum up, the capacity of the State to influence reproductive behaviour directly seems to be limited; this would apply to measures intended to stimulate higher fertility as much as to measures intended to depress fertility, particularly if the intention is to change the direction of trends in family behaviour. Various Governments in Western Europe have tried for many years to promote higher birth rates through exhortation, incentives such as family

allowances, restrictions on contraceptive sales and advice, etc. The impact on reproductive behaviour seems to have been insignificant.

(ii) *Instruments intended to influence population increase and quality through migration across national boundaries.* The changing currents of international migration demonstrate how the developmental implications of demographic trends depend on changes in the patterns of economic growth and international inter-dependence. Up to the 1920s Europe, with a much smaller population than the present, seemed to be an inexhaustible source of migrants to Latin America and other thinly populated parts of the world. This stream has practically dried up, both because of full employment in the former countries of emigration and because of the declining relative attractiveness of opportunities in the countries of immigration. The slackening demand for unskilled and semi-skilled labour in Latin America as well as in the high-income countries means that Latin America has no interest in admitting immigrants of the types that would still be available, and has almost no possibility of relieving the domestic over-supply of labour by encouraging emigration. International migration in relation to Latin America has lost practically all of its importance for the *quantity* of national population, and is very unlikely to regain it. At the same time, the importance of international migration for the *quality* of population continues and is changing in ways that are, on balance, highly unfavourable to Latin American development. Ability to attract to Latin America immigrants possessing the skills and professional qualifications that are needed for the next stages of development is weak. The ability of the high-income countries to attract from Latin America emigrants possessing such qualifications—particularly engineers, physicians and nurses—has up to the present been strong. This problem has attracted international attention under the name of “brain drain”, and a number of policy instruments have been proposed to reverse the trend. As in the case of the measures discussed above in relation to reproductive behaviour, most of these seem likely to be ineffective, unacceptable in terms of rights, excessively expensive, or inapplicable in the absence of broader changes in economic and social structures. Such measures include: provision of salary levels and opportunities to acquire consumer goods (particularly automobiles) matching those offered by the high-income countries; prohibition of the emigration of persons pos-

sessing needed skills, or the imposition of high taxes on such migration; requirement that graduates of national professional and technical training institutions work for a fixed period in national programmes to compensate for the costs of their training; reform of the training institutions themselves to bring their output into closer correspondence with national needs and overcome its dependence on the models, demands and incentives of the high-income countries. It is also possible that present economic and social difficulties and slackening demand for professionals in the countries that have exerted the strongest pull will reduce the importance of the problem as far as Latin America is concerned.

(iii) *Geographical and occupational distribution of the population objectives and instruments.* The preceding pages have touched repeatedly on the relationships between population growth and its redistribution by geographical areas and sectors of economic activity within countries. For the short and medium term, the possibilities for planning of public action so as to control population redistribution in consonance with a determined development strategy seem to be more favourable than in the case of population growth. The range of instruments at the disposal of the State is wider, and it is more practicable and socially acceptable to aim at population redistribution objectives in the choice and manipulation of instruments.

It has also been indicated that measures bearing on population redistribution are more likely to be planned within a context of regional development policy, urban development policy, or rural development policy than as parts of a comprehensive population policy, although the latter solution would not be out of the question. In this examination of the instruments of a population policy it will thus be sufficient to stress the potential importance of the selection of objectives and instruments fitted to the circumstances of each country, and to take note of a wide consensus that in most countries of the region the next stages of development call for more decentralized patterns of urban growth and distribution of economic activities.

(iv) *Information needed for population policy.* Demographic information has three main sources: censuses, vital statistics registers and sample surveys. All of these sources have serious deficiencies in relation to policy needs. Some of the shortcomings are inherent in the

methods of data collection, wherever they are used, and in the recalcitrance of some of the phenomena to definitions simple and uniform enough for easy recording. Others derive from the lamentably low priorities given by most Latin American Governments to the careful collection and prompt dissemination of demographic information. Still others belong to the traits of under-development: illiteracy, marginality, rural isolation, political instability and deficient public administrative machinery set limits on national capacity to produce reliable demographic or other statistics. The second shortcoming is more readily remediable than the others; it requires only a moderate change in priorities for use of public resources, some attention to training of staff and, above all, a clear-cut demand for better information from political leaders and planners.

Both in individual countries and in regional organizations, a great deal of effort and ingenuity has been devoted to techniques for the quantification of demographic and other factors related to development on the basis of whatever information is at hand. Under the circumstances, this is unavoidable and useful, but it has probably encouraged an illusion that more is known than is actually the case, and may have helped to perpetuate the low priority given to the painstaking and expensive collection of basic data. When estimates of this kind acquire authority by repetition from source to source without the caveats and methodological explanations supplied by their originators, and when they are incorporated in plans, it might sometimes be suspected that an imaginary country concerning which there is exhaustive information is being diagnosed and planned for, rather than a real country concerning which there is little reliable information.<sup>55</sup>

*Population censuses.* Over a long period, inter-American organizations have tried to strengthen and institutionalize the practice of taking censuses at the beginning of each decade. The high point of success came in the 1950 round; eighteen out of the twenty Latin American republics (all except Peru and Uruguay) completed censuses at some time between 1947 and 1953. In the 1960 round, Bolivia, Cuba and Haiti failed to carry out censuses, and it

<sup>55</sup> The report of the inter-agency team on employment policy in Colombia, repeatedly stresses the difficulties for its work presented by inadequate statistics and comments that "in some respects there has been an over-investment in analysis and an under-investment in basic collection of reliable statistics". (*Towards Full Employment*, op. cit., para. 929.)

appears that under-enumeration and delays in tabulations were more widespread than in 1950. It is probable that in the 1970 round the number of omissions will be about the same. It is naturally the countries with lowest incomes and highest percentages of rural population that find it hardest to make the considerable concentrated effort needed to set up a functioning census apparatus every ten years, although most of them have finally managed to do so. These censuses have been affected by varying degrees of under-enumeration,<sup>56</sup> and by doubtful reliability of answers to some questions as recorded by untrained census-takers. A still more serious shortcoming has been slowness and incompleteness in tabulating and publishing the data.<sup>57</sup>

The censuses are the main sources for basic demographic information and projections. For year-to-year figures demographers are dependent on the trends revealed by successive censuses. When data from one census are more inaccurate than data from another to an unknown degree, and when the most recent census is several years in the past, the margin of possible error widens. While methods of making projections have been continually refined in recent years and cross-checking against other sources of information offers some protection, it should be kept in mind that most population figures for 1970, as well as projections for the future, still derive from censuses conducted around 1950 and 1960. The results may be tolerably reliable for population size, rate of increase, and age distribution at the national level, but can go far astray in regard to population redistribution within a country. This limitation is sometimes forgotten when non-demographers try to relate population trends to economic and social trends that can be measured through indicators collected year by year.

*Vital statistics and other continuing series collected by the public administration.* The possibility of presenting reliable birth rates, death rates and nuptiality rates, and of cross-

<sup>56</sup> A number of census evaluations carried out in CELADE contain calculations of percentages of under-enumeration; for example, 3.46 for Colombia in 1964, 2.3 for Ecuador in 1962, and 2.9 for Mexico in 1960. Real under-enumeration, however, may be much higher, if probable failure to cover tribal populations and some of the more isolated and dispersed rural population nuclei is taken into account. See G. Mortara, "Evaluación de la información censal para América Latina", in *Demografía y Salud Pública en América Latina*, Milbank Memorial Fund, 1964.

<sup>57</sup> In one case, detailed and complete results for the census of 1960 are still not available.

checking census-derived information on population increase, has up to the present depended on the maintenance of complete vital statistics registration. It is questionable whether this objective can be attained until a country has reached a certain level of urbanization, literacy, diffusion of property, and availability of social services requiring documentary evidence on the constitution of the family and the origin of the individual. Accurate statistical information is then a by-product of the social uses of the registration system. According to United Nations criteria—which have been characterized as excessively generous—vital statistics registration is incomplete in fifteen out of twenty-six countries of Latin America and the Caribbean.

*Sample surveys.* The most practicable and flexible means of obtaining up-to-date information on internal migration, patterns of urbanization, family levels of living, incomes, occupations, attitudes and practices regarding fertility, and many other questions important to policy-making, is the sample survey. The shortcomings of vital statistics registration, mentioned above, have also led to promising experiments in the use of this technique (through continuous registration in a sample of the population, divorced from legal and administrative purposes) for the obtaining of more accurate vital statistics.<sup>58</sup> The need for

<sup>58</sup> Forest E. Linder, "New Approaches to the Measurement of Mortality". Two experimental sample surveys of vital statistics have been carried out: One in an urban area (Guanabara, Brazil) and one in a rural area (Cauquenes, Chile). See United Na-

systematic sample surveys and for the setting up of national institutions equipped to carry out such surveys has been reiterated during the past two decades, but up to the present no Government in the region has provided the minimum resources needed to make the sample survey a dependable policy instrument, although several countries may be on the point of doing so if their present plans are carried out and continuity is maintained. An important number of sample surveys of demographic questions have been made, including surveys of internal migration to capital cities (Lima and Santiago); of urban mortality; and of attitudes toward fertility among urban and rural women of different countries, but they have been organized mainly by regional institutions such as CELADE or by universities and have been financed mainly through grants from foundations and other institutions outside the region.<sup>59</sup>

tions, *Guanabara Demographic Pilot Survey*, Population Studies No. 35; and CELADE, *Encuesta Demográfica Experimental. Cauquenes*, Santiago de Chile, 1968.

<sup>59</sup> The migration surveys are reported on in *Encuesta sobre inmigración en el Gran Santiago* CELADE, Serie A, No. 15) and in *Encuesta de Inmigración de Lima Metropolitana* (DINEC, Lima, Nos. 1, 2 . . .). The mortality surveys are reported on in Ruth Rice Puffer and G. Wynne Griffith, *Patterns of Urban Mortality*, Report of the Inter-American Investigation on Mortality, Pan American Health Organization, Scientific Publications No. 151, September 1967. The surveys of urban fertility covered Bogotá, Buenos Aires, Caracas, Mexico City, Panama, Rio de Janeiro, and San José; surveys of rural fertility have been completed in Chile and Colombia, and are to be extended to most of the countries covered by the urban surveys.

# THE FOREIGN TRADE AND TRADE POLICY OF THE ENGLISH-SPEAKING CARIBBEAN COUNTRIES

## I. GROWTH PATTERN OF TRADE, 1950-1969

### 1. *Introduction*

Within the relative diversity of the countries in the geographical area of Latin America, those of the Caribbean have certain characteristics in common and have developed in a different socio-economic environment from the rest. The Caribbean countries obtained their political independence in comparatively recent years,<sup>1</sup> and it is only since then that they have enjoyed complete autonomy in the conduct of their trade relations, although for some years previously they had been gradually securing some measure of self-government in matters of internal policy and administration. Independence brought with it membership of the British Commonwealth, but this did not imply any substantive changes in the system of preferential trade relations established at the Economic Conference in Ottawa in 1932.

Thus, the growth pattern of the Caribbean countries' trade, both before and after their independence, has emerged within the institutional framework created by the agreements that have given shape to the British Commonwealth: in other words, the developing countries' role is essentially that of suppliers of primary commodities, in favour of which certain tariff and non-tariff concessions are granted, while in their turn they are required to grant preferential treatment to imports of industrial goods from the developed countries. Although the general economic policy of the Caribbean countries is directed towards tackling some of the problems common to all the developing countries (industrial development incentives, expansion and diversification of exports, higher growth rates for the domestic product, etc.), the measures and policies adopted have been such that the trade relations system inherited from the recent colonial past is left virtually intact. It must be recog-

nized, however, that the course of certain international events is forcing the Caribbean countries to face, at relatively short notice, the inevitable necessity of introducing substantive changes in their system of trade relations, both in order to avert possible clashes with policies aimed at speeding up economic development, and in order to make a full contribution to the establishment of a greater measure of fair play in trade between the developed and the developing countries.

### 2. *Growth pattern of exports*

The over-all annual growth rate of the Caribbean countries' aggregate exports averaged 8 per cent in 1950-1969. A breakdown by individual countries, however, reveals a very marked difference between the rate attained by Barbados, which was only 4 per cent annum, and the more satisfactory pace achieved by the other three countries. Similarly, the growth pattern of exports falls into two widely differing phases: in the case of Guyana, Jamaica, and Trinidad and Tobago, the rate of increase was highest from 1950-1952 to 1960-1962, and it declined sharply in the seven subsequent years, whereas for Barbados it was very low in the earlier period and improved in the later, when it slightly exceeded the figures for the other three countries (see table 1).

A salient feature in this group of countries is the high rate of growth attained by Jamaica's exports during the 1950s. At the beginning of the decade Jamaica started exporting bauxite and alumina, production of which expanded rapidly in the years that followed. While output of bauxite amounted to 1.2 million tons in 1953, by 1960 it had reached 5.8 million tons, and by 1969, 8 million. Such rapid development not only gave great dynamic impetus to the export sector, but considerably altered the composition of exports, more than 90 per cent of which had formerly consisted

<sup>1</sup> Jamaica and Trinidad and Tobago, in mid-1962; Barbados and Guyana, towards the end of 1966.

**Table 1**  
**CARIBBEAN COUNTRIES: AVERAGE VALUE OF TOTAL EXPORTS, 1950-1969**

Country	Million of dollars			Percentage rates of increase		
	1950-1952	1960-1962	1967-1969	1960-1962	1967-1969	1967-1969
				1950-1952	1960-1962	1950-1952
Barbados .....	20	26	39	2.6	5.9	4.0
Guyana .....	37	86	115	8.8	4.2	6.9
Jamaica .....	49	176	237	13.7	4.3	9.7
Trinidad and Tobago .....	121	326	458	10.4	5.0	8.1
<i>Total, 4 countries</i> .....	<i>227</i>	<i>614</i>	<i>849</i>	<i>10.5</i>	<i>4.7</i>	<i>8.0</i>

SOURCES: *Handbook of International Trade and Development Statistics* (United Nations publication, Sales No.: E/F.69.II.D.15); United Nations, *Monthly Bulletin of Statistics*.

of agricultural products. It also resulted in a change in the relative importance of external markets, since the country's high degree of dependence on the United Kingdom was lessened, and exports to Canada and the United States increased.

The favourable growth rate of exports from Trinidad and Tobago was also linked to one particular item—in this case, petroleum and petroleum products. It was attributable both to the expansion of domestic production and, more especially, to the practice of importing crude petroleum from Colombia and Venezuela for processing in local refineries. The difficulty of obtaining supplies from the Middle East during the Suez Canal crisis in 1956 created a very favourable opportunity for the expansion of exports from Trinidad and Tobago, as is apparent from the annual increase of 10.4 per cent recorded for the country's total exports in the 1950s. The slackening of this rate in the later years of the period under review reflects the more strenuous competition prevailing in the world market for petroleum products, which has even obliged some of the leading world exporters to regulate the expansion of production.

Export growth in Guyana, although slightly slower than in the two countries mentioned above, was also mainly concentrated in the earlier part of the period, and was due to increases in production of rice, sugar and bauxite. The negotiation of a regional rice agreement in 1956, under the terms of which Guyana became the principal supplier of rice in the Caribbean area, gave a considerable fillip to its rice exports at first, but in more recent years import requirements in some of the Caribbean countries and territories were reduced by the expansion of domestic production, so

that part of Guyana's rice exports were diverted to other markets. During the period 1962-1969, exports of rice, sugar and bauxite increased a good deal more slowly, with the result that the growth rate of total exports was lower than in the preceding ten years.

Of the Caribbean countries, Barbados showed the most sluggish export growth rate. From 1950-1952 to 1960-1962, this rate was only 2.6 per cent per annum, in sharp contrast with the position in the other three countries. The fact that sugar represents so high a proportion of Barbados' total exports (over 60 per cent in recent years) largely accounts for the unsatisfactory development of the country's external sector, since in the period mentioned there was no sign of an upward trend in sugar production. Between 1962 and 1969 total exports increased much faster, mainly by virtue of a vigorous upswing in re-exports and the emergence of certain new export lines. Some contribution was also made by the expansion of sugar exports resulting from the opening-up of the United States market, to which producers in the Caribbean area had not previously had access. The United States allocation of import quotas for sugar from the Caribbean countries not only enlarged these countries' export market but raised the average value of sugar exports, because price levels in the United States market were higher as a general rule than the prices laid down in the British Commonwealth's Sugar Agreement.

Broadly speaking, the conclusion may be reached that the growth pattern of total exports was a little more favourable in the Caribbean countries than in many others in the Latin American region, partly because of the preferential treatment accorded to the Caribbean countries in the United Kingdom

market, and partly too because world demand for bauxite and petroleum products increased faster than demand for most agricultural commodities.

A glance at the composition of exports by staple products will show that their expansion was in fact essentially based on a few traditional items, and that only in recent years have a few new export lines begun to develop. The latter would seem to be the first fruits of certain export promotion measures that have been adopted, which will be discussed later.

The position of the Caribbean countries as regards the degree to which exports are concentrated in a few products is much the same as that of other countries in the Latin American area (see table 2).

The variations in the commodity exports concentration indexes are fairly small in most cases, probably because of the shortness of the period taken as the base for comparison and of occasional fluctuations in the share of certain commodities. At all events, it should be pointed out that, of the Caribbean countries, only in Barbados was there a relatively sharp drop in the concentration index, while the variations observed in the other three countries are only slight.

In the first place, it should be mentioned that, in Barbados, total exports have grown faster than exports of national products, that is, the share of re-exports has increased in recent years (see table 3).

Indeed, the proportion of re-exports in total exports increased from 14 per cent in 1958-1960 to 28 per cent in 1966-1968.

Unrefined sugar and molasses are the major national exports, though their share in the total has declined in recent years. In this connexion, it should be noted that sugar production in Barbados has undergone fairly wide fluctuations and has shown no definite growth tendency, so that the greater value of exports of those products in 1966-1968 (and even more so in the years immediately prior to 1966) is due principally to the greater unit value of exports to the United States, following the re-allocation to the Caribbean and other Latin American countries of the quota that was previously granted to Cuba. It is also interesting to note that the participation of Barbados in the British Commonwealth Sugar Agreement and its access to the United States market helped to prevent its sugar exports from suffering the effects of the sharp drop in sugar prices in the free trade area.

In recent years, Barbados has been able to develop some new exports; although these represent only a small proportion of the total, they signify the beginning of a greater diversification of exports. Particular mention may be made of crustacea and molluscs, lard and margarine, and some textile manufactures.

Guyana's exports are somewhat more diversified than Barbados', although in any case only three commodities (rice, sugar and bauxite) represent an average of 83 per cent of the total value of exports. The figures in table 3 show that rice exports grew fairly rapidly between the periods 1958-1960 and 1966-1968, while sugar exports remained at approximately the same level. In fact, the production of both

**Table 2**  
LATIN AMERICA: COMMODITY EXPORTS CONCENTRATION INDEXES<sup>a</sup>, 1960 AND 1966

<i>Increase</i>	1960	1966	<i>Decrease</i>	1960	1966
Guyana .....	54.3	55.4	Barbados .....	86.2	74.0
Cuba .....	76.6	86.4	Trinidad and Tobago .....	78.8	74.4
Ecuador .....	64.4	65.0	Jamaica .....	56.0	53.6
Panama .....	56.1	59.2	Colombia .....	74.3	66.4
Dominican Republic .....	54.1	59.8	Venezuela .....	72.5	70.2
Honduras .....	51.1	53.1	El Salvador .....	71.2	50.0
Nicaragua .....	46.0	51.7	Guatemala .....	69.4	49.6
Argentina .....	30.0	32.2	Costa Rica .....	60.9	46.2
			Brazil .....	58.0	46.3
			Mexico .....	27.2	24.3

SOURCE: UNCTAD, *Handbook of International Trade and Development Statistics* (United Nations publication, Sales No.: E/F.69.II.D.15), p. 143.

<sup>a</sup> The commodity concentration index is equal to

100 if only one commodity is exported, and its value decreases with the degree of diversification of exports. The formula used for calculation can be consulted in the source quoted.

**Table 3**  
**BARBADOS: TOTAL EXPORTS, BY MAJOR COMMODITIES**

SITC Sections	Millions of dollars		Percentage of total	
	1958-1960	1966-1968	1958-1960	1966-1968
Over-all total .....	24.9	39.6	—	—
National exports .....	21.4	28.7	100.0	100.0
Section 0 .....	19.5	24.7	91.1	86.1
Crustacea and molluscs ...	...	2.8	...	9.7
Raw sugar .....	16.4	18.6	76.6	64.1
Molasses .....	2.4	1.9	11.2	6.6
Lard and margarine .....	...	0.6	...	2.1
Section 1 .....	1.3	1.8	6.1	6.3
Rum .....	1.3	1.7	6.1	5.9
Section 2 .....	—	0.2	—	0.6
Section 3 .....	—	0.3	—	0.9
Section 4 .....	—	0.1	—	0.3
Section 5 .....	0.5	0.3	2.3	0.9
Section 6 .....	—	0.4	—	1.4
Section 7 .....	—	0.3	—	0.9
Section 8 .....	—	0.8	—	2.8

SOURCE: United Nations, *Yearbook of International Trade Statistics*, various issues.

rice and sugar reached a high rate of growth in the early 1950s, but while rice output continued to increase in the 1960s, the production of sugar suffered some setbacks, failing to rise above the figures recorded in previous years. Thus, the opening up of the United States market to Guyana's sugar exports (and the higher prices obtained on that market) served only to counteract the effects of the smaller volume of exports registered in the last few years. The value of sugar exports in 1966-1968 was thus approximately equal to their value in 1958-1960, but as in the same period the export value of other products increased, the share of sugar in the total value of exports declined from 49 to 28 per cent (see table 4).

The production of bauxite contributed most to the expansion of Guayana's exports. The average value of bauxite exports tripled in the course of the period concerned and their share in total exports rose from 23 to 42 per cent, ousting sugar from its place as the country's principal export item. The expansion of bauxite production and exports was due to the tariff and tax concessions accorded to foreign companies engaged in this activity. In the extractive industries sector, exports of manganese ore were initiated and diamond exports increased.

The changes in the respective share of the three most important commodities in Guyana's total exports, while not diminishing their proportion as a whole (83 per cent in 1958-1960 and 1966-1968), at least altered the structure of exports in favour of bauxite and other mining products, world demand for which, in general, has been more dynamic and has fluctuated less than demand for most agricultural commodities.

As stated previously, exports grew more rapidly in Jamaica than in any other Caribbean country, particularly in the 1950s. They are also more diversified, even though only three products—sugar, bananas and bauxite (including alumina)—supply the bulk of Jamaica's export earnings. Between 1958-1960 and 1966-1968, the value of exports of these three products increased in varying amounts, the largest increments being in bauxite and alumina; however, the share of sugar in the total decreased from 27 to 20 per cent, and that of bananas from 10 to 8 per cent. This was due, as indicated by the above figures, not to a decline in export values but rather to the faster growth of bauxite and alumina exports, which together accounted for about 48 per cent of total exports. The expansion of these exports has been stimulated by the various concessions accorded

**Table 4**  
**GUYANA: TOTAL EXPORTS, BY MAJOR COMMODITIES**

SITC Sections	Millions of dollars		Percentage of total	
	1958-1960	1966-1968	1958-1960	1966-1968
Total .....	63.6	109.9		
National exports .....	62.7	106.8	100.0	100.0
Section 0 .....	39.8	50.4	63.5	47.2
Crustacea and molluscs ...	...	4.0	...	3.7
Rice .....	6.4	14.0	10.2	13.1
Raw sugar .....	30.8	29.7	49.1	27.8
Molasses .....	...	2.1	...	2.0
Section 1 .....	2.0	2.5	3.2	2.3
Rum .....	1.9	2.5	3.0	2.3
Section 2 .....	17.7	49.6	28.2	46.4
Wood .....	1.6	1.7	2.6	1.6
Bauxite .....	14.6	45.0	23.3	42.1
Manganese .....	—	2.5	—	2.3
Section 3 .....	—	—	—	—
Section 4 .....	—	—	—	—
Section 5 .....	0.7	0.8	1.1	0.7
Section 6 .....	1.8	3.2	2.9	3.0
Diamonds .....	1.8	2.9	2.9	2.7
Section 7 .....	0.3	—	0.5	—
Section 8 .....	0.2	0.2	0.3	0.2

SOURCE: United Nations, *Yearbook of International Trade Statistics* (various issues).

to the companies controlling production and by the favourable trend of external demand. Preferential arrangements with the United Kingdom have guaranteed the access of agricultural products (sugar, bananas and citrus fruit) to that market at relatively stable prices. The unit sales value of bananas was raised by exporting them in cartons instead of stems. In contrast, coffee and cocoa exports were affected by a decline in production (see table 5).

The exports which have become most important in recent years are fuels, clothing and footwear, some chemical products and cement, all of which, although they represent fairly small proportions of the total value, have contributed to the diversification of Jamaica's exports.

Exports from Trinidad and Tobago consist mainly of petroleum and petroleum products, the share of agricultural products being the smallest in this group of countries. The growth of exports of petroleum and petroleum products is attributable partly to the development of domestic production, but mainly to imports of crude for local refining. In fact, while domes-

tic production of crude petroleum increased by 79 per cent between 1958 and 1968, imports of crude rose 241 per cent. The expansion of refining was favoured by the unstable conditions that have affected producers in the Middle East in certain years, and probably also by the more liberal treatment of foreign investment compared with other Latin American countries (see table 6).

Concurrently with the expansion of oil production and refining, Trinidad and Tobago has developed the production and export of some petrochemical products, which in 1966-1968 already represented 9 per cent of total exports. These, coupled with the increases recorded in exports of other manufactures, give Trinidad and Tobago's export sector a somewhat different character from that of other Caribbean countries, both because of the high proportion of petroleum products and because of the volume of manufactures whose share in total exports is larger than in any other Caribbean country.

The relatively small share of agricultural products, however, bears no relation to the importance of their production at the levels of

**Table 5**  
**JAMAICA: TOTAL EXPORTS, BY MAJOR COMMODITIES**

SITC Section	Millions of dollars		Percentage of total	
	1958-1960	1966-1968	1958-1960	1966-1968
Total	144.5	229.3	—	—
National exports	138.0	220.7	100.0	100.0
Section 0	59.9	79.0	43.4	35.8
Raw sugar	37.6	44.4	27.3	20.1
Molasses	...	3.1	...	1.4
Bananas	13.7	17.5	9.9	7.9
Canned fruit	1.8	3.2	1.3	1.4
Fruit juices	2.3	2.9	1.7	1.3
Coffee	1.0	0.7	0.7	0.3
Cocoa	1.7	0.9	1.2	0.4
Section 1	5.4	6.8	3.9	3.1
Rum	3.5	2.9	2.5	1.3
Section 2	66.8	109.1	48.4	49.4
Bauxite	32.2	49.9	23.4	22.6
Alumina	32.8	57.6	23.8	26.1
Section 3	—	7.1	—	3.2
Section 4	—	—	—	—
Section 5	1.6	5.2	1.2	2.4
Section 6	1.5	3.2	1.1	1.4
Section 7	—	—	—	—
Section 8	2.4	10.0	1.7	4.5
Clothing	...	7.8	...	3.5

SOURCE: United Nations, *Yearbook of International Trade Statistics* (various issues).

**Table 6**  
**TRINIDAD AND TOBAGO: TOTAL EXPORTS, BY MAJOR COMMODITY**

SITC Section	Millions of dollars		Percentage of total	
	1958-1960	1966-1968	1958-1960	1966-1968
Total	265.5	444.6	—	—
National exports	257.5	439.4	100.0	100.0
Section 0	31.4	34.5	12.2	7.9
Raw sugar	19.5	22.2	7.6	5.1
Molasses	—	1.6	—	0.4
Coffee	1.2	2.0	0.5	0.5
Cocoa	6.2	3.3	2.4	0.8
Fruit	3.3	3.7	1.3	0.8
Section 1	1.9	1.8	0.7	0.4
Rum	1.7	1.2	0.7	0.3
Section 2	2.7	2.8	1.0	0.6
Natural asphalt	1.2	1.9	0.5	0.4
Section 3	213.4	348.3	82.9	79.3
Section 4	0.2	0.2	—	—
Section 5	3.2	39.7	1.2	9.0
Ammonium compounds	—	15.6	—	3.6
Tar distillates	3.2	15.1	1.2	3.4
Ammonium sulphate	—	4.9	—	1.1
Section 6	3.0	4.6	1.2	1.0
Section 7	0.1	2.5	—	0.6
Section 8	1.5	4.4	0.6	1.0
Clothing	—	2.3	—	0.5

SOURCE: United Nations, *Yearbook of International Trade Statistics* (various issues).

personal income and domestic economic activity. Both oil production and refining and the petrochemical industry are highly capital-intensive activities employing a relatively small amount of manpower; hence, their rapid expansion has done little or nothing to solve the serious unemployment problem affecting about 20 per cent of the labour force. The sluggish growth of agricultural exports (production of which constitute the biggest source of employment) has not helped either to solve the unemployment problem.

### 3. Trend of imports

In every Caribbean country, the growth of imports between 1950-1952 and 1967-1969 followed roughly the same pattern as that of exports. As can be seen from table 7, in three of the countries (Guyana, Jamaica, and Trinidad and Tobago) the fastest-growing period was from 1950-1952 to 1960-1962, after which the rate of expansion showed a tendency to decline. Barbados' period of rapid growth, on the contrary, was between 1960-1962 and 1967-1969. Moreover, whereas Barbados' total imports grew considerably faster than its exports, the growth rate of imports was slightly lower than that of exports in the other three countries.

An important aspect of the general trend of imports in these countries is the extent of the changes in composition in terms of major categories of products. First of all, imports of food, beverages and tobacco are relatively high, particularly in Barbados, which has the region's least diversified agricultural sector. In Barbados, as in Guyana and Jamaica, these imports nonetheless expanded more slowly than those of other products and consequently accounted for a smaller percentage of the total

during the later years. Such was not the case in Trinidad and Tobago, where this particular group of products continued to make up around a quarter of the country's total imports. Although the reference periods for estimating the changes in the composition of imports are not very far apart and therefore cannot be expected to indicate any major modification, it would nevertheless seem fair to conclude that the import substitution policy for food products—one of the principal objectives of all the Caribbean countries' economic policy—has had somewhat meagre results.

Though they only make up a small percentage of the total, imports of crude materials and animal and vegetable oils and fats (SITC sections 2 and 4) have declined in relative importance throughout the Caribbean, except in Trinidad and Tobago.

Barbados and Guyana showed a tendency to increase the percentage of fuels and lubricants in their total imports, unlike Jamaica where the growth rate was much slower and represented a relative decline—partly because of the domestic production of petroleum, which has developed in recent years into an export product. Petroleum imports serve a different purpose in Trinidad and Tobago, being used not to satisfy domestic demand—as in the other countries—but to expand the capacity of local refineries to export petroleum products. The increase in these imports, from 32 per cent of the total in 1958-1960 to 51 per cent in 1966-1968, is clearly indicative of the growth of one of this country's industrial activities but does not have the same significance for countries where petroleum is for domestic consumption. It has therefore been left out of the present calculations, so as not to give a false picture of the percentage shares of all the other groups of products (see table 8).

**Table 7**  
CARIBBEAN COUNTRIES: AVERAGE VALUE OF TOTAL IMPORTS  
(Millions of dollars)

	1950-52	1960-62	1967-69	1960-62	1967-69	1967-69
				1950-52	1960-62	1950-52
Barbados .....	28	49	87	5.8	8.5	6.9
Guyana .....	40	82	120	7.5	5.6	6.6
Jamaica .....	84	217	392	10.0	8.8	9.5
Trinidad and Tobago ..	123	329	438	10.4	4.2	7.8
Total .....	275	677	1,037	9.4	6.3	6.3

SOURCE: *Handbook of International Trade and Development Statistics* (United Nations publication, Sales No.: E/F.69.II.D.15); United Nations, *Monthly Bulletin of Statistics*.

**Table 8**  
**CARIBBEAN COUNTRIES: TOTAL IMPORTS, BY SITC SECTION**

	<i>Millions of dollars</i>		<i>Percentage of the total</i>	
	<i>1958-1960</i>	<i>1966-1968</i>	<i>1958-1960</i>	<i>1966-1968</i>
<i>Barbados</i>				
<i>Total</i> .....	44.9	79.2	100.0	100.0
Foods, beverages and tobacco (sections 0 and 1) .....	13.8	20.8	30.7	26.3
Crude materials, oils and fats (sections 2 and 4) .....	2.6	3.4	5.8	4.3
Fuels and lubricants (section 3) .....	2.3	7.6	5.1	9.6
Chemicals (section 5) .....	3.4	6.0	7.6	7.6
Various manufactured goods (sections 6 and 8) .....	13.8	23.9	30.7	30.1
Machinery and transport equip- ment (section 7) .....	7.6	15.1	16.9	19.1
Other goods (section 9) .....	1.5	2.5	3.3	3.2
<i>Guyana</i>				
<i>Total</i> .....	72.9	118.8	100.0	100.0
Sections 0 and 1 .....	14.5	19.9	19.9	16.7
Sections 2 and 4 .....	1.4	2.0	1.9	1.6
Section 3 .....	5.6	10.1	7.7	8.5
Section 5 .....	5.6	11.1	7.7	9.3
Sections 6 and 8 .....	26.2	38.4	35.9	32.3
Section 7 .....	19.4	36.6	26.6	30.8
Section 9 .....	0.3	0.6	0.4	0.5
<i>Jamaica</i>				
<i>Total</i> .....	196.7	353.5	100.0	100.0
Sections 0 and 1 .....	44.3	71.7	22.5	20.3
Sections 2 and 4 .....	8.9	12.1	4.5	3.4
Section 3 .....	17.5	27.3	8.9	7.7
Section 5 .....	16.1	28.5	8.2	8.1
Sections 6 and 8 .....	66.0	121.2	33.6	34.3
Section 7 .....	43.7	91.8	22.2	26.0
Section 9 .....	0.3	0.6	0.2	0.2
<i>Trinidad and Tobago</i>				
<i>Total</i> .....	265.5	428.7		
Fuels (section 3) .....	86.0	218.8		
<i>Total, excluding section 3</i> ..	179.5	209.9	100.0	100.0
Sections 0 and 1 .....	43.1	52.0	24.0	24.8
Sections 2 and 4 .....	5.7	8.5	3.2	4.1
Section 5 .....	12.5	20.2	7.0	9.6
Sections 6 and 8 .....	68.7	72.4	38.3	34.5
Section 7 .....	47.3	54.0	26.3	25.7
Section 9 .....	2.1	2.6	1.2	1.2

SOURCE: United Nations, *Yearbook of International Trade Statistics* (several issues).

#### 4. Direction of trade

To a large extent, the distribution of the Caribbean countries' trade among the major areas or countries of the world is the result of the traditional links they had with the United Kingdom prior to becoming independent. As members of the British Commonwealth, the Caribbean countries have free access to or preferential treatment in the United Kingdom

market for their major exports and, in return, grant preferential treatment to imports from the United Kingdom. However, while the preferences granted by the United Kingdom are confined to agricultural products, those granted by the Caribbean countries apply to all imports. Because of this, the United Kingdom has held a dominant share in the foreign trade of the Caribbean countries, its relative share de-

pending in each case on the proportion of agricultural exports in total exports. During the 1960s, however, there was a steady decline in the United Kingdom's share in the imports and exports of each of the Caribbean countries. With respect to exports, this decline was mainly attributable to the fact that the growth of exports was for the most part accounted for by mining products which either do not enjoy preferences or are exported to the country of origin of the company controlling production. With respect to imports, the decline is an indication that the preferential tariff has not always been the determining factor as regards origin, for its effects have been cancelled out or offset by other tariff concessions, for example special concessions covering imports of equipment, machinery and supplies for the installation of new industries or the expansion of existing industries.

In brief, it can be said that the most salient trend in Caribbean trade during the 1960s (as regards the origin and destination of imports and exports) has been the gradual erosion of the dominant position of the United Kingdom and the growth in the share of trade with the United States, which in some cases has taken over the United Kingdom's position as major trade partner. Moreover, the decline in the United Kingdom's position has been due, not to changes in its preferential trade with the Caribbean countries, but to the fact that their exports are growing and to the inflow of foreign investment (mainly from the United States) attracted by the concessions they offer.

Not surprisingly, Barbados' exports are the most concentrated in the United Kingdom market, owing to the large share of sugar exports and the preferential régime established under the British Commonwealth Sugar Agreement. In 1958-1960 the United Kingdom absorbed 60 per cent of Barbados' total exports, followed by Canada with 16 per cent. By 1966-1968, developments in the world sugar market had changed the distribution of exports, with the United Kingdom's share standing at 43 per cent of the total (although in absolute values exports to the United Kingdom remained unchanged) and Canada falling to third place with only 8 per cent. The decline in the share of these two countries, and the rise of the United States to the second most important market for Barbados' exports is attributable to the fact that Barbados, and other Caribbean countries, were given a United States sugar quota when all trade with Cuba was prohibited. Access to the United States market also meant

that the sugar exports not covered by the British Commonwealth Sugar Agreement, which had formerly had to be sold either to the United Kingdom or to Canada or to any other country at world free market prices, could be sold to the United States at prices much higher than those prevailing in the free market. Nevertheless, despite these changes in the relative share of the United Kingdom, the United States and Canada, total exports from Barbados continue to be concentrated virtually exclusively in these three countries, probably because they are so little diversified.<sup>2</sup> Although its exports to developing countries increased in absolute terms (virtually all to other Caribbean countries and territories), the share of such exports in the total declined slightly between 1958-1960 and 1966-1968 (see table 9).

The country distribution of Guyana's exports shows similar trends to that of Barbados. The United Kingdom (which absorbed 41 per cent of the total in 1958-1960) and Canada (29 per cent in 1958-1960) were relegated to second and third place, respectively, as a result of the sharp upswing in exports to the United States during the 1960s. In 1966-1968 the United States absorbed 24 per cent of total exports, while the United Kingdom and Canada accounted for 23 and 20 per cent respectively.

The rise of the United States to Guyana's major export market was due to some extent to the access to it of some of Guyana's sugar exports, but mainly to the expansion of the production of bauxite. Bauxite was also a contributory factor in the increase in the exports to other countries (Norway and Sweden in the European Free Trade Association, and the Netherlands and Italy in the European Economic Community); although this increase was not of great significance, it did at least constitute a break-through into new markets for Guyana's exports. The share of exports to developing countries, mainly in the Caribbean, rose from 14 per cent in 1958-1960 to 16 per cent in 1966-1968. This share consisted mainly of rice, Guyana having become a major rice supplier under an agreement between a number of Caribbean countries and territories.

The United States was already Jamaica's major export market in 1958-1960 (accounting for 29 per cent of total exports) and its

<sup>2</sup> These three countries absorbed 80 per cent of total exports in 1958-1960 and 64 per cent in 1966-1968, but in the latter period the proportion of exports not classified by destination was much higher (18 per cent).

Table 9

## CARIBBEAN COUNTRIES: TOTAL EXPORTS BY MAJOR AREAS AND COUNTRIES OF DESTINATION, 1958-1960 AND 1966-1968

	<i>Millions of dollars</i>		<i>Percentage of the total</i>	
	<i>1958-1960</i>	<i>1966-1968</i>	<i>1958-1960</i>	<i>1966-1968</i>
<i>Barbados</i>				
<i>Total</i> .....	25	40	100	100
Developed areas .....	20	26	80	65
Developing areas .....	5	7	20	18
Soviet areas .....	—	—	—	—
Unclassified <sup>a</sup> .....	—	7	—	18
United States .....	1	5	4	13
Canada .....	4	3	16	8
EEC countries .....	—	—	—	—
EFTA countries .....	15	17	60	43
United Kingdom .....	15	17	60	43
Japan .....	—	—	—	—
Latin America <sup>b</sup> .....	—	—	—	—
<i>Guyana</i>				
<i>Total</i> .....	63	110	100	100
Developed areas .....	53	86	84	78
Developing areas .....	9	18	14	16
Soviet areas .....	—	—	—	—
Unclassified <sup>a</sup> .....	1	5	2	4
United States .....	7	26	11	24
Canada .....	18	22	29	20
EEC countries .....	2	4	3	4
EFTA countries .....	26	32	41	29
United Kingdom .....	26	25	41	23
Japan .....	—	—	—	—
Latin America <sup>b</sup> .....	—	—	—	—
<i>Jamaica</i>				
<i>Total</i> .....	139	222	100	100
Developed Areas .....	134	204	96	92
Developing areas .....	5	14	4	6
Soviet areas .....	—	—	—	—
Unclassified <sup>a</sup> .....	—	3	—	1
United States .....	40	86	29	39
Canada .....	32	32	23	14
EEC countries .....	3	4	2	2
EFTA countries .....	58	80	42	36
United Kingdom .....	47	57	34	26
Japan .....	—	—	—	—
Latin America <sup>b</sup> .....	—	—	—	—
<i>Trinidad and Tobago</i>				
<i>Total</i> .....	258	444	100	100
Developed areas .....	170	335	66	75
Developing areas .....	53	74	21	17

Table 9 (continued)

	Millions of dollars		Percentage of the total	
	1958-1960	1966-1968	1958-1960	1966-1968
Soviet areas .....	—	—	—	—
Unclassified <sup>a</sup> .....	35	35	13	8
United States .....	47	188	18	42
Canada .....	13	18	5	4
EEC countries .....	23	26	9	6
EFTA countries .....	87	90	34	20
United Kingdom .....	77	54	30	12
Japan .....	—	—	—	—
Latin America <sup>b</sup> .....	12	9	5	2

SOURCE: International Monetary Fund and International Bank for Reconstruction and Development, *Direction of Trade. A Supplement to International Financial Statistics, Annual 1958-1962 and Annual 1964-1968*.

<sup>a</sup> Includes exports under the entry "Special categories" and also exports that could not be assigned to any area, mostly ships' bunkers, as noted in the above-mentioned source.

<sup>b</sup> Nineteen Latin American republics, not including Cuba, which the source places among the Soviet bloc countries.

share rose steadily to reach 39 per cent in 1966-1968. The reasons for this were similar to those in Barbados and Guyana, namely access to the United States market for part of its sugar exports and increased production and exports of bauxite and alumina. Another contributory factor, although of less importance, was the increase in Jamaica's exports of textile manufactures. During the same period the United Kingdom's share of exports fell from 34 to 26 per cent and Canada's from 23 to 14 per cent. Exports to other European countries (chiefly the other members of EFTA) increased their share in the total, which rose from 8 per cent in 1958-1960 to 10 per cent in 1966-1968. Exports to the EEC countries, however, remained at negligible levels. Lastly, it should be noted that the proportion of Jamaica's exports going to developing countries was the lowest of all the Caribbean countries.

Although the structure of Trinidad and Tobago's exports is fundamentally different from that of the other Caribbean countries, because of the large share of petroleum and petroleum products, the country distribution of its exports changed in similar fashion. The value of its exports to the United States rose from 47 to 188 million dollars between 1958-1960 and 1966-1968 (18 and 42 per cent of the total, respectively) making the United States its most important export market. Most

of the increment was attributable to petroleum products and products of the petrochemical industry (chiefly fertilizers) and to certain manufactures produced by subsidiaries of United States companies. As in the other Caribbean countries, but much more markedly so, the share of the United Kingdom in Trinidad and Tobago's exports fell from 30 to 12 per cent, this being the only case in which exports to the United Kingdom fell in absolute terms. Petroleum and petroleum products do not receive preferential treatment in the United Kingdom, and hence Trinidad and Tobago does not have the same degree of market access to the United Kingdom as the other Caribbean countries, whose exports are composed mainly of agricultural commodities. Sugar, Trinidad and Tobago's major agricultural export, accounted for only 5 per cent of total exports in 1966-1968.

The decline in exports to the United Kingdom was, however, offset by the increase in exports to other members of EFTA, whose share in total exports increased from 4 to 8 per cent.

Trinidad and Tobago is the only Caribbean country whose exports to the EEC countries are of any significance, although they have fluctuated quite considerably. Although they rose slightly in value during the period considered, their share fell from 9 to 6 per cent. Exports to Canada followed a similar trend;

sugar being the major export, they were partially diverted to the United States market. Although sugar exports to Canada do not receive preferential treatment, in 1967 Canada agreed to return part of the import duties applied to Caribbean importers but, owing to the low price of sugar in the free market, this was not sufficient to counteract the high price on the United States market.

A feature common to all the Caribbean countries is the absence of export flows to the socialist countries. Similarly, export trade to Japan has been only very occasional and in virtually insignificant amounts. The situation is not the same, however, with the Latin American countries. Trinidad and Tobago is the only country with a steady export trade with certain Latin American countries, an average value of 12 million dollars in 1958-1960 which fell to 9 million in 1966-1968. The major market was Brazil, followed by Argentina and Venezuela. In recent years, Jamaica has exported some low-value items to Honduras.

With respect to imports, the most striking feature, as noted above, is the growing importance of imports from the United States. The most marked increase, in both absolute and relative terms, has been in imports by Guyana and Jamaica, where the expansion of bauxite and alumina production was financed by fresh United States investment. In Barbados and Trinidad and Tobago the rate of growth of imports from the United States was comparatively lower but still sufficient to raise the United States share in total imports (see table 10).

The growth of imports from the United States was accompanied by a decline in the share of imports from the United Kingdom, although only in the case of Trinidad and Tobago was there a decline in the value of United Kingdom imports. Considering that all the Caribbean countries have a fairly high margin of preference in favour of the United Kingdom, this decline in the United Kingdom's share demonstrates that preferential tariff concessions may be of only relative value if they are offset by other factors, for example differences in price, quality or the other cost components of imports, or tariff exemptions on imports of machinery, equipment and supplies for the installation of new import-saving or export-oriented industries. In all the Caribbean countries, the incentives offered to foreign investment have played an important role in the expansion of certain primary and manufactur-

ing activities and in the promotion of the tourist industry, and this in turn stimulated a greater flow of imports from the countries (principally the United States and Canada) supplying the investment.

Imports from the EEC countries account for a larger share of the total than exports to them, in Barbados and Guyana they grew at a rate comparable with that of total imports, while in Jamaica and Trinidad and Tobago they grew much more slowly, especially in Trinidad and Tobago where their absolute value slightly declined.

The trend of imports from Latin America was more favourable than that of exports to it. While Trinidad and Tobago was the only Caribbean country exporting to other Latin American countries, with the share of such exports falling from 5 per cent in 1958-1960 to 2 per cent in 1966-1968, imports from the Latin American countries increased substantially in Barbados, Jamaica, and Trinidad and Tobago. In the case of Trinidad and Tobago, this increase was virtually all due to increased purchases of crude petroleum from Venezuela and Colombia and is related to the expansion of plants refining petroleum for export. The scale of the increase in Trinidad and Tobago's imports of petroleum from these countries can be judged by the fact that their share in total imports rose from 25 per cent in 1958-1960 to 42 per cent in 1966-1968. Over the same period, the share of imports from Latin American countries in the total increased from 2 to 9 per cent in Barbados and from 2 to 7 per cent in Jamaica, this being due in both cases, as in Trinidad and Tobago, to increased imports from Venezuela.

The formation of the Caribbean Free-Trade Association (CARIFTA), as a result of the agreement that entered into force on 1 May 1968, boosted reciprocal trade among the Caribbean countries. The application of the first two sections of the automatic liberalization programme established in the agreement (a 20 per cent reduction in tariffs by May 1969, and a further 20 per cent by May 1970) has certainly been an important factor in the growth of intra-Caribbean trade. Between 1967 and 1969, imports from other Caribbean countries had risen by 50 per cent in Barbados, 31 per cent in Jamaica, 23 per cent in Trinidad and Tobago and 14 per cent in Guyana. In absolute terms, however, reciprocal trade among the Caribbean countries is still at an insignificant level and future growth will be hampered by the lack of diversification.

**Table 10**  
**CARIBBEAN COUNTRIES: TOTAL IMPORTS BY MAJOR AREAS AND**  
**COUNTRY OF ORIGIN, 1958-1960 AND 1966-1968**

	<i>Millions of dollars</i>		<i>Percentage of the total</i>	
	1958-1960	1966-1968	1958-1960	1966-1968
<i>Barbados</i>				
<i>Total</i> .....	45	79	100	100
Developed areas .....	35	62	78	78
Developing areas .....	9	17	20	22
Soviet areas .....	—	—	—	—
Unclassified .....	—	—	—	—
United States .....	5	10	11	13
Canada .....	6	7	13	9
EEC countries .....	4	7	9	9
EFTA countries .....	18	24	40	30
United Kingdom .....	17	23	38	29
Japan .....	1	1	2	1
Latin America .....	1	7	2	9
<i>Guyana</i>				
<i>Total</i> .....	73	119	100	100
Developed areas .....	60	98	82	82
Developing areas .....	12	19	16	16
Soviet areas .....	1	1	1	1
Unclassified .....	—	1	—	1
United States .....	12	30	16	25
Canada .....	6	12	8	10
EEC countries .....	7	13	10	11
EFTA countries .....	31	36	42	30
United Kingdom .....	31	35	42	29
Japan .....	1	4	1	3
Latin America .....	—	—	—	—
<i>Jamaica</i>				
<i>Total</i> .....	196	351	100	100
Developed areas .....	167	306	85	87
Developing areas .....	26	41	13	12
Soviet areas .....	1	—	—	—
Unclassified .....	2	3	1	1
United States .....	44	133	22	38
Canada .....	21	37	11	11
EEC countries .....	24	34	12	10
EFTA countries .....	72	80	37	23
United Kingdom .....	71	73	36	21
Japan .....	4	9	2	3
Latin America .....	4	23	2	7
<i>Trinidad and Tobago</i>				
<i>Total</i> .....	264	429	100	100
Developed areas .....	158	190	60	44
Developing areas .....	94	233	36	54
Soviet areas .....	1	—	—	—
Unclassified .....	11	6	4	1
United States .....	36	64	14	15
Canada .....	16	22	6	5
EEC countries .....	19	16	7	4
EFTA countries .....	86	71	33	17
United Kingdom .....	83	66	31	15
Japan .....	—	6	—	1
Latin America .....	65	179	25	42

SOURCE: As for table 9.

## II. TRADE POLICY

The general lines of the trade policy of the countries of the Caribbean may be defined in the light of certain characteristics and objectives that are common to all these countries. In the first place, the countries consider it necessary to maintain their position within the British Commonwealth system of preferences, which guarantees free access to the United Kingdom market for their chief agricultural export products, though this also means the granting of tariff concessions on imports from the United Kingdom. In the second place, they try to keep their economies open, within the limits compatible with the need to ensure a minimum degree of protection for domestic industry, in order to speed up the economic growth rate. Lastly, a process of economic co-operation and subregional integration has been initiated as a key factor in overcoming the obstacles to economic development caused by the relatively small size of the domestic markets.

These basic features of trade policy provide a general framework for examining its development in recent years; such policy will also be related to those aspects of international trade and external financing that are of interest to all developing countries.

### 1. *Participation by the Caribbean countries in the British Commonwealth system of preferences*

In all the English-speaking countries of the Caribbean there is a two-tier tariff system under which there are two sets of duties for every item or sub-item: one applicable to the members of the British Commonwealth, and another, higher duty, applicable to all other countries. This system was established as a result, not of negotiations between countries, but of the colonial relationship these countries had with the United Kingdom up to a few years ago. The changes that the Caribbean countries have introduced in their tariff systems in the years following the achievement of their independence have not generally interfered with the margins of preference established previously in favour of the United Kingdom and other developed countries of the British Commonwealth.

The counterpart to preferential treatment by the countries of the Caribbean for imports from the British Commonwealth is to be found in the preferential arrangements in the United

Kingdom and Canada for products exported by the Caribbean countries. It should be made clear that, while the Caribbean countries extend preferences to nearly all the developed countries of the British Commonwealth, the system is not entirely reciprocal, since the preferences they enjoy on return are granted almost exclusively by the United Kingdom and Canada.

Although the British preferential arrangements are the result of a long-standing process, their current features were formalized at the economic conference held in Ottawa in 1932. When the General Agreement on Tariffs and Trade (GATT) was negotiated in 1947, it was stipulated in article 1 that most-favoured-nation treatment should not require the elimination of any preferences in force between two or more of the territories listed in Annex A (that is, dependent territories of the United Kingdom of Great Britain and Northern Ireland, apart from the other countries of the British Commonwealth). However, the United Kingdom made no tariff concessions on behalf of its dependent territories.

From the moment they acquired their independence, the four countries of the Caribbean became Contracting Parties of GATT, by virtue of article XXVI.<sup>3</sup> This meant that these countries did not need to enter into negotiations with the other contracting parties in respect of tariff concessions, as is explicitly established in article XXXIII, so that they had greater freedom to introduce substantive changes in their system of tariffs and their trade policy in general, as they had not consolidated their system of duties as a result of negotiations. They were also able to subscribe to section A of article XVIII, which permits the developing countries to modify or withdraw concessions when this is considered necessary to protect nascent industries. In the case of this article, however, it must be understood that the withdrawal or modification refers to negotiated concessions; but since the United Kingdom did not grant concessions on behalf of the territories that

<sup>3</sup> "If any of the customs territories, in respect of which a contracting party has accepted this Agreement, possesses or acquires full autonomy in the conduct of its external commercial relations and of the other matters provided for in this Agreement, such territory shall, upon sponsorship through a declaration by the responsible contracting party establishing the above-mentioned fact, be deemed to be a contracting party". GATT, *Basic Instrument and Selected Documents*, vol. IV, Geneva, March 1969.

are today independent countries of the Caribbean, the GATT restrictions relate to the margins of preference that already exist between the countries of the British Commonwealth. That is to say, the countries of the Caribbean may unilaterally modify their tariffs provided that such modifications do not alter the margin of preference that existed when the General Agreement entered into force.

Even in this case, it must be stressed that the provisions of the General Agreement have been fairly flexibly applied to developing countries; thus, the reason why the Caribbean countries have not suggested the need for a complete overhaul of the system of reciprocal preferences with some Commonwealth countries is that they set more value on the preference they receive from the United Kingdom and Canada for their main exports of primary commodities than on the preferences they grant for manufactures imported from those countries. It must be recognized, moreover, that this need has not arisen because, the Caribbean countries being free to establish their tariffs levels (which have not been laid down in negotiations with the Contracting Parties), the only requirement they have had to meet in changing them is to maintain the margin of preference existing prior to the introduction of changes. By way of illustration, the following changes were made in the customs tariffs for some products in Jamaica:

SITC items	Duties in force (percentages ad valorem)			
	31 December 1964		4 July 1967	
	Preferential	General	Preferential	General
013-02 . . . .	10	25	12.5	30.5
013-09.9 . . .	10	25	12.5	30.5
053-01 . . . .	25	40	33.0	53.0
053-02 . . . .	25	40	33.0	53.0
053-03.9 . . .	10	15	12.5	18.5
053-04 . . . .	20	30	26.5	40.0
541-01 . . . .	20	30	24.5	36.5
541-04.9 . . .	10	15	12.5	18.5
721-04.1 . . .	20	30	36.5	48.5
811-01 . . . .	15	25	18.5	30.5
812-01 . . . .	20	30	24.5	36.5
812-04 . . . .	15	20	18.5	24.5
821-01 . . . .	30	35	36.5	42.5

SOURCE: Jamaica, *Customs Tariff of Import Duties* (Kingston, The Government Printer, December 1964); *The Jamaica Gazette Supplement*, vol. XC, No. 80, July 7, 1967.

It should be noted in this respect that the changes in the rate of *ad valorem* duty referred to above have meant an increase in the absolute margin of preference accorded for imports from British Commonwealth countries. Such changes would appear to contravene the provisions in article I, paragraph 4, of the General Agreement, as can be seen from the "Notes and supplementary provisions" contained in annex I to the Agreement:

"The term 'margin of preference' means the absolute difference between the most-favoured-nation rate of duty and the preferential rate of duty for the like product, and not the proportionate relation between those rates. As examples: (1) If the most-favoured-nation rate were 36 per cent *ad valorem* and the preferential rate were 24 per cent *ad valorem*, the margin of preference would be 12 per cent *ad valorem*, and not one-third of the most-favoured-nation rate".<sup>4</sup>

Turning again to the above examples, it will be noted that in raising the *ad valorem* rate Jamaica has not kept strictly to the rule established in the General Agreement, since it has tried to maintain the proportionate relation between the preferential rate of duty and the general rate of duty, and not the absolute difference between them. Thus, for example, a product for which there had formerly been a preferential rate of duty of 20 per cent *ad valorem* and a general rate of 30 per cent *ad valorem*, enjoyed an absolute margin of preference of 10 per cent *ad valorem*; if those rates are raised to 26.5 and 40 per cent *ad valorem*, respectively, the same proportionate relation is maintained, but the absolute margin of preference will have increased to 13.5 per cent *ad valorem*.

The reason why Jamaica has followed this practice in modifying its tariffs apparently lies in the provisions of the 1925 West Indies-Canada Trade Agreement, which stipulates that the margin of preference will represent a certain percentage of the rate of duty established for imports from third countries.

This does not seem to be common practice in all the Caribbean countries however. In some of the changes introduced in Trinidad and Tobago's customs tariff, the previous absolute margin of preference has been maintained. The following examples illustrate this point:

<sup>4</sup> GATT, *Basic Instrument and Selected Documents*, vol. IV, op. cit., p. 62.

SITC items	Duties in force (percentages ad valorem)			
	6 April 1962		28 February 1969	
	Preferential	General	Preferential	General
652.02.001 . . .	20	30	40	50
653.05 . . . . .	25	35	40	50
653.07 . . . . .	25	35	40	50
721.06.09 . . . .	20	30	5	15
721.06.01 . . . .	20	30	35	45
899.08 . . . . .	20	30	30	40

SOURCE: *Schedules of Import duties and Exemptions from Duties Imposed under the Customs Ordinance* (Trinidad, W.I., Government Printing House, 1962); *Combined Trade Classification List and Schedules of Import Duties and Exemptions from Duties Imposed under the Customs Ordinance* (Trinidad and Tobago, Government Printery, 1969).

As can be seen from these examples, tariff adjustments in Trinidad and Tobago generally keep the absolute margin of preference of 10 per cent *ad valorem* in relation to the general tariff. Although in this way the relative margin of preference shrinks more and more the higher the new tariff rises, the opposite occurs if the change consists of a reduction in the previous tariff levels, i.e., the relative margin of preference increases considerably.

This subject calls for some observations. First, as indicated above, the GATT provisions determine that the margin of preference is the absolute difference between the general and the preferential tariff. According to the West Indies-Canada Trade Agreement, the margin of preference is the relative proportion between the two tariffs. As has just been shown, Trinidad and Tobago adopted the first rule and Jamaica the second. Since both countries are members of GATT, and also members of the British Commonwealth and parties to the above-mentioned Trade Agreement,<sup>5</sup> the question is which of the two rules takes precedence over the other, or whether the countries concerned can choose either one. Secondly, it would be useful to determine which of these rules would be more advantageous from the standpoint of the expansion of reciprocal trade between the Caribbean countries and other developing nations, e.g., the Latin American

<sup>5</sup> Although this Agreement was signed when the Caribbean countries were still territories dependent on the United Kingdom, at the Commonwealth Caribbean-Canada Conference held in June 1966, it was reaffirmed that the 1925 Agreement continued to be an adequate instrument for trade relations between those countries. See *Final Communiqué, Commonwealth Caribbean-Canada Conference, Guyana, 8 July 1966*.

countries, in view of the interest shown by the Caribbean nations in stepping up trade with these countries and even in joining one of the regional economic integration systems. It is obviously impossible to hazard an answer to this question, because a comparison of the new tariff levels with the old (whether they maintain the absolute or the relative margin of preference) is not in itself an adequate basis for establishing whether they have more restrictive or less restrictive effects on trade with countries which are not accorded a preferential treatment. At first sight, it might be thought that if the tariff changes consist of increases in the rates applicable to specific products (as has happened most frequently) and such changes are designed to maintain the absolute margin of preference, the reduction in the relative margin of preference would make products from "third countries" more competitive than those obtained from the preference area. In all probability, however, this reduction in the relative margin of preference would do nothing to improve their competitive position; on the contrary, it might even worsen it, owing to the greater efficiency and productivity of manufacturing in developed countries than in developing nations. This question would have to be examined in relation to each product for which the customs duties are modified, and it would also be necessary to analyse the relative levels of productivity and the competitive position of preference and non-preference suppliers.

In any case, it would seem reasonable to conclude that so long as the Caribbean countries' tariff policy is to grant preferential treatment to imports from British Commonwealth countries, the discrimination against Latin American products which this treatment involves constitutes a bigger obstacle to the expansion of trade between the Caribbean countries and others in the Latin American region. Given the somewhat similar structure of exports from the Caribbean and other Latin American countries, the best chances of expanding reciprocal trade lie in manufactures and semi-manufactures and, to a lesser degree, some primary products. The preferential treatment extended to Commonwealth countries, however, reduces the area for an expansion of trade between the two groups of countries.

## 2. Preferential arrangements in favour of the Caribbean countries

Obviously, the maintenance of the preferences granted by the Caribbean countries is

contingent upon the preferential treatment they in their turn receive in the markets of the United Kingdom and Canada. There is, of course, no strict equivalence between the concessions they accord and those they are accorded, since the former cover their whole range of imports, while the latter are applicable only to a small number of agricultural products, the importance of which varies considerably in the four countries of the area.

Viewed in the light of the concepts now governing trade relations between developed and developing countries, in particular the idea that the developed countries should not demand strict reciprocity in respect of the trade concessions they grant to countries in process of development, the position of the Caribbean countries seems to be in direct opposition to these principles, i.e., they give more in the way of concessions than they receive. The explanation apparently is that the preferential arrangements between the Caribbean countries and some of the members of the British Commonwealth date back to the time when the former were dependent territories of the United Kingdom, and since they became politically independent it has not been deemed opportune to raise the question of renegotiating the system, presumably because this would also imply renegotiating the preferential terms accorded to their export products.

In the Caribbean countries themselves there has been no lack of advocates for the revision of the system, but interests linked to the export sector have carried the day, on the widely-asserted ground that the production costs of export activities are too high for them to survive without the support implicit in the guaranteed markets and preferential treatment accorded by the United Kingdom and Canada. The view has been expressed that even if the United Kingdom were to join the European Economic Community, a step which would entail a drastic overhauling of its preferential links with the Commonwealth countries, it would be essential that the existing preferential arrangements with the Caribbean countries should be maintained.<sup>6</sup>

<sup>6</sup> The following statement, *inter alia*, may usefully be mentioned in this connexion: "The continued reliance of the economy on sugar and citrus production requiring preferential shelter in metropolitan markets is a sign of structural weakness. However, in view of the long historical basis of such preferential links, it would be utopian to advocate an instantaneous discarding of such links. In the context of British entry into the EEC it is highly essential that continued

An account of the products subject to these arrangements and the preferential treatment they receive is given below.

#### (a) *Sugar*

The Commonwealth Sugar Agreement is the instrument regulating the United Kingdom's imports of sugar from the Commonwealth countries. The following are among its essential features: (i) it establishes import quotas in favour of each of the member countries; (ii) it fixes that part of the quota which is to be purchased duty-free at a periodically negotiated price; (iii) it provides that the difference between each country's total quota and the part of the quota to which the negotiated price applies, shall be purchasable at the world (free market) price and subject to the preferential duty; (iv) in its present form, it is of indefinite duration, but it will be revised every three years as from 1971; (v) if the United Kingdom joins the European Economic Community, its commitments under the Agreement will not be of a contractual nature after 31 December 1974, and in that event it will consult with the other parties as to ways and means of honouring them. It is also stipulated in the 1968 International Sugar Agreement, article 35, that sales to the United Kingdom under the British Commonwealth Agreement, up to the amount covered by the quotas subject to the negotiated price, shall not be reckoned as part of the export quota established by the International Agreement.

Accordingly, the preferential treatment enjoyed by the Caribbean countries exporting sugar to the United Kingdom combines the following advantages: (i) they can rely on a safe market for most of their production, thanks to the allocation of import quotas; (ii) they are guaranteed a price (fixed by negotiation between the parties) which has generally been higher than the world price; (iii) the negotiated price and total exemption from customs duties are applicable to approximately 80 per cent of the quotas fixed for the Caribbean countries; (iv) only the remaining 20 per cent of the quota is subject to the preferential duty and has to be marketed at world prices. The preferential margin is approximately 10 per cent *ad valorem*, but as the duties are of the specific type, the *ad valorem* equivalent fluctuates in accordance with prices.

protection for our sugar and citrus be maintained". Government of Trinidad and Tobago, see "Draft Third Five-Year Plan, 1969-1973" (Government Printery, 1968).

The preferential treatment granted by Canada to the British Commonwealth countries is governed by the West Indies-Canada Trade Agreement of 1925. Canada purchases its sugar imports at world market prices and also accords them a preferential margin of approximately 10 per cent *ad valorem*. Furthermore, by virtue of a decision adopted by Canada in 1967, it was agreed that part of the preferential duty applicable to sugar imports should be refunded to the Caribbean exporters.

Given such preferential treatment (especially in the United Kingdom market), it is not surprising that up to 1960 the Caribbean countries' sugar exports were concentrated entirely in the markets of the United Kingdom and Canada. As from 1961, however, the changes introduced by the United States in its sugar legislation gave the Caribbean countries access to its market, from which they had formerly been debarred, and a flow of exports was established which for some of them has reached significant figures. The annual volume of exports shipped to the United States by Guyana and Jamaica fluctuates between 15 and 30 per cent of their total sales abroad; the corresponding proportions for Trinidad and Tobago show more erratic fluctuations, varying between 5 and 20 per cent; while they are lowest in the case of Barbados, where they range from 2 to 7 per cent of the total. In other words, the opening-up of the United States market is having a redistributive effect on the Caribbean countries' total sugar exports, inasmuch as it offers higher prices for sugar.

#### (b) *Bananas*

The United Kingdom's system of preferences for banana imports operates through quantitative restrictions applicable to all non-members of the British Commonwealth, in addition to a specific customs duty (equivalent in *ad valorem* terms to about 15 per cent). Imports from Commonwealth countries are not subject to restrictions or duty. The system of quantitative restrictions allocates an annual quota of 4,000 tons to countries in the dollar area, which includes the Latin American countries that export bananas. This quota represents little more than 1 per cent of the United Kingdom's total imports. Approximately 90 per cent of the total is of Commonwealth origin, coming almost entirely from Jamaica and the Windward Islands.

Bananas from British Commonwealth countries also have free access to Canada's market.

A specific duty (equivalent to about 7 per cent *ad valorem*) is applicable to imports from other sources, but this preferential margin has not sufficed to encourage imports from the Caribbean countries, although probably the reason is in part that all their exportable production is earmarked for the United Kingdom. Consequently, Canada imports almost all its bananas from Latin American countries.

The geographical distribution of world trade in bananas is partly influenced by the preferential agreements existing between specific developed and developing countries, and partly by the special characteristics of production, transport and distribution in the consumer markets. But, as pointed out with reference to Canada, the existence of preferential customs treatment has not sufficed to generate a flow of imports from the countries enjoying it. Although the United Kingdom establishes a higher preferential margin, its imports from countries against which discriminatory tariff treatment is in force are in reality restricted by the existence of an over-all quota. These facts seem to bear out the argument commonly advanced by the Caribbean countries to the effect that their production costs are very high, and that in default of quantitative restrictions, therefore, they would be unable to face the competition put up by producers in other areas. A similar situation is observable in other markets where preferential systems are also in operation (chiefly France and Italy): i.e., the tariff preference has to be accompanied by some type of restriction (permits, quotas, etc.). But where bananas are concerned the strong influence exerted by the marketing system must not be overlooked. In most of the exporter countries production and/or export transport and distributions activities are controlled by one or two big international consortia through their subsidiaries or affiliated branches in the countries in question.

#### (c) *Citrus fruit*

The preferential treatment granted by the United Kingdom for products falling in this group covers both total exemption from duties and charges for imports from British Commonwealth countries and the application of quantitative restrictions to those coming from the dollar area. The preferential tariff margin (i.e., the duty on non-preferential imports) ranges from 3 to 18 per cent *ad valorem* (approximately equivalent to the respective specific duties) according to the product and the season. The quantitative restrictions on

imports from the dollar area mainly apply to tinned juices, oranges and grapefruit.

Canada's preferential tariff on fresh fruit is less discriminatory, since the total exemption granted to Commonwealth countries is also accorded to countries receiving most-favoured-nation treatment, which means that only the remainder have to pay the existing duties and charges.

As regards imports of lemon juice, the preferential tariff of 10 per cent *ad valorem* is again also applied to countries with which Canada has most-favoured-nation agreement, while the normal tariff is 25 per cent *ad valorem*. Finally, imports of orange and grapefruit juice from Commonwealth countries are duty free, whereas the tariff is 7.5 per cent *ad valorem* for countries receiving the most-favoured-nation treatment and 25 per cent *ad valorem* for the others.

Of the Caribbean countries, Jamaica and Trinidad and Tobago are the main exporters of citrus fruit, though in fact these products only make up a fairly small share of their total exports. Considering the origin of the United Kingdom's imports, however, this share is more significant than it seems since, in terms of volume, that country purchased less than 1 per cent of all its citrus fruit for 1966-1968 from Caribbean countries. The same applies to Canada.

#### (d) *Other products*

The United Kingdom and Canada ceased granting imported cocoa beans preferential treatment during the Kennedy Round negotiations, thereby eliminating altogether the duties and charges on imports from countries receiving most-favoured-nation treatment and consequently introducing a single tariff for both the latter and the Commonwealth countries. In the United Kingdom, the tariff preference was also removed from cocoa products. As for coffee beans, Canada lifted the existing duty while the United Kingdom reduced a general tariff from 4 to 2 per cent *ad valorem*, so that the margin of preference in favour of (duty-free) imports from the British Commonwealth is now 2 per cent *ad valorem*. Jamaica and Trinidad and Tobago are the main Caribbean exporters of coffee and cocoa beans but, here again, their share of total exports is very small—less than 1 per cent in each country.

As regards mineral products, the exportation of bauxite and crude petroleum products is an extremely important activity in Jamaica, Guyana and Trinidad and Tobago. Recently,

bauxite has represented 40 per cent of Guyana's total exports, and bauxite and aluminium around 50 per cent of Jamaica's. Although the United Kingdom imports these products duty-free, Jamaica's and Guyana's exports go almost entirely to the United States and Canada owing to the fact that their bauxite and aluminium production is controlled by subsidiaries or branches of United States and Canadian enterprises.

Exports of crude petroleum and petroleum products provide Trinidad and Tobago with most of its external revenue—between 75 and 80 per cent of the total in recent years. The United Kingdom does not offer any tariff preferences on imports of these products but applies a single specific duty to all heavy and light crude oils, whatever their origin. In recent years, between 6 and 7 per cent of Trinidad and Tobago's total exports of petroleum and petroleum products went to the United Kingdom, compared with around 5 per cent to Canada and approximately 50 per cent to the United States.

This short summary of the kind of preferential treatment that the Caribbean countries receive from the United Kingdom and Canada shows it to be mainly restricted to two agricultural products (sugar and bananas) which constitute a large share of the exports of Barbados, Guyana and Jamaica and somewhat less of those of Trinidad and Tobago. It would be wrong, however, to imagine that the problem of the preferences granted to the Caribbean countries by the United Kingdom can be easily solved merely because only two products are really affected. In addition to its importance as a source of external income for three of the four Caribbean countries, the production of sugar and bananas provides employment for a large part of the labour force; consequently, any change in the volume of these exports could accentuate the serious unemployment situation facing those countries. Moreover, the problem has to be viewed in relation to other aspects of international trade policy, such as the probable introduction of a general system of preferences in favour of all developing countries, the possible entry of the United Kingdom into the European Economic Community and the prospect of a general expansion of trade with other countries of Latin America.

#### 3. *Implications of the general system of preferences*

In the course of negotiations on the introduction of a world-wide system of general

preferences in favour of the exports of manufactures and semi-manufactures of developing countries, a number of problems have arisen as a result of the maintenance of special preference arrangements between groups of developing nations and certain developed countries, such as the British Commonwealth and the EEC. The working hypothesis on which these negotiations were based involved the granting of generalized preferential treatment to all products included in chapters 25 to 99 of the Brussels Tariff Nomenclature (BTN), except for specific products placed on a negative list; conversely, all products included in chapters 1 to 24 of the BTN were to be excluded from any preferential treatment, except for those appearing on a positive list. As regards the British preference system and the concessions the United Kingdom grants Caribbean countries, along with other developing Commonwealth countries, the main implications are as follows:

(a) The duty-free concessions granted to all developing countries participating in the preference system with respect to manufactures and semi-manufactures contained in chapters 25 to 99 of the BTN (with the agreed exceptions) would mean better market opportunities for the exports of Caribbean countries and therefore make up for any possible loss that might otherwise result from their sharing with other countries the preferences they currently enjoy with the United Kingdom. This extension of the preference system could supply the "equivalent benefits" that the Caribbean countries, and others in a similar position, have stipulated as a requisite for the elimination of the special preference treatment they currently receive (see the declarations of representatives of these countries in several international organizations, including ECLA).<sup>7</sup> Moreover, the extension of the preference system could mean greater incentives for new exports or for stepping up existing exports than could derive from a system of preferences affecting only a single market.

(b) At present the Caribbean's exports of manufactures and semi-manufactures are minimal, and the few that exist in any case include products contained in the list of exceptions submitted by some of the principal developed countries (textiles, footwear). It must therefore be expected that the prejudice—if any—suf-

fered by the Caribbean countries as a result of the extension of the preference area would be very slight in the short term, while, in the long term, the chances of increasing the volume of these exports would in fact be much better.

(c) From the point of view of the Caribbean countries, there are more immediate definite advantages to be gained from the positive list of products in chapters 1 to 24 of the BTN to which the preference system will be extended, as it includes tariff reduction or duty-free arrangements that could stimulate new outlets for exports to the United States, the EEC and other developed countries. It would be noted that, in making their offers, both the United Kingdom and Canada have stressed that the developing countries of the British Commonwealth must be granted preferential access to other markets to compensate for their having to share with other countries the preferences they currently enjoy vis-à-vis the United Kingdom and Canada.<sup>8</sup> The United Kingdom has, furthermore, made the extension of the preferential tariff treatment to other developing countries conditional upon "the consent of countries in the Commonwealth preference area with trade agreement rights to waive these rights to the extent required to enable preferences on these products to be extended to non-Commonwealth developing countries". As regards products in BTN chapters 1 to 24, this stipulation would apply to bananas and citrus fruit and to certain other less important products included by the United Kingdom in its positive list and exported by Caribbean countries. It is not altogether clear, however, whether the concept of compensation in the form of access to other markets should be interpreted in a narrow sense, as restricted

<sup>8</sup> The relevant paragraphs read as follows: "Canada's offer has been drawn up on the basis of the following assumptions, qualifications and conditions: . . . That to the extent Commonwealth developing countries will have to share their present tariff preferential access to the Canadian market, they will be compensated by improved access to the markets of other preference-giving countries". "One of the considerations that the United Kingdom will bear in mind in determining any modifications to the preferential tariff treatment now proposed will be the extent to which Commonwealth developing countries and territories receive new advantages in the markets of other donor countries in compensation for sharing their existing preferential advantages in the U.K. market." (UNCTAD "Substantive documentation on the generalized scheme of preferences", TD/B/AC.5/34/Add.4, p. 2 and Add.3, p. 2.)

<sup>7</sup> See ECLA, *Annual Report, Official Records of the Economic and Social Council, Forty-third Session, Supplement No. 4* (document E/CN.12/784/Rev.1), para. 405.

to products whose preferential access to the United Kingdom market is shared, or in a wider sense, to the effect that duty-free entry or tariff concessions should be granted by other countries even on products not at present benefiting from such preferential access. The Caribbean countries (as well as others with preferential access to certain markets) clearly seem to receive compensation when the preference area is enlarged, whether in the same products or others.

As members of the Latin American Group (Group of 77), the Caribbean countries participated in the UNCTAD Special Committee on Preferences, where they adopted a position that was completely in agreement with the objectives and aspiration of the rest of the group with regard to the general system of preferences. At the end of the Committee's meeting, it was precisely one of the Caribbean countries that was called upon to speak for the whole Latin American Group on the conclusions reached regarding the establishment of the system of preferences and to state the limitations that the revised submissions of the developed countries still implied for certain Latin American exports.<sup>9</sup>

#### 4. *Issues related to the United Kingdom's entry into the European Economic Community*

The resumption of negotiations for expanding the European Economic Community through the entry of the United Kingdom and other European countries is compelling the Caribbean countries to consider, on the one hand, the nature of the arrangements or agreements adopted in relation to the United Kingdom system of preference and, on the other, whether some or all of the developing Commonwealth countries may choose to negotiate agreements for association with the expanded Community.

According to the terms in which the negotiations have been resumed, a prerequisite for the United Kingdom's entry into the Community is its acceptance of the instruments of EEC policy, such as the Common External Tariff and the common agricultural policy. In the first place, this would mean replacing—within the agreed period of transition—the

<sup>9</sup> See UNCTAD, "Statement by the representative of Jamaica on behalf of the Latin American countries members of the Group of 77", "Report of the Special Committee of Preferences on the second part of its fourth session" (TD/B/329/Add.6). The complete document TD/B/329 with its addenda 1 to 6 comprises the report on all the meetings, the conclusions reached with regard to the establishment of the system of preferences, and a summary of the debates.

existing system of four different tariff columns<sup>10</sup> by the EEC Common External Tariff. Secondly, it would entail the adoption of the system of domestic support prices and fixed and/or variable levies on imports of agricultural products from third countries. All this would affect the United Kingdom's economy (domestic prices, balance-of-payments position, etc.) and bring about substantial changes in the direction of import and export flows.

It is interesting to examine here the different treatment accorded by the United Kingdom and EEC to imports from the Caribbean countries.

#### (a) *Sugar*

The characteristics of the Commonwealth Sugar Agreement were described earlier in this study. It was stated that if the United Kingdom were to join the Community, its obligations under this Agreement would cease to be binding after 31 December 1974, in which case it would consult the other contracting parties as to how the provisions of the Agreement would continue to be complied with. In other words, the Agreement would have to be negotiated on new bases, in line with the obligations accepted by the United Kingdom in connexion with the common agricultural policy.

In the Community, sugar is one of the commodities which has been subject to the common market organization since 1 July 1968, in accordance with Regulation No. 1009 of December 1967, as amended by Regulation No. 2485/69 of December 1969. In compliance with these regulations, every year the Commission of EEC fixes the basic target price (which serves as a guide to producers), the intervention price (which represents the basic guarantee to producers) and the threshold price (which is used as a basis for fixing the variable levies in order to equalize the price of imports from third countries with the basic target price).<sup>11</sup>

The regulation of the sugar market within the Community therefore constitutes a highly protectionist policy which not only guarantees complete self-sufficiency but also encourages

<sup>10</sup> The United Kingdom tariff system currently envisages four different types of treatment: (1) that applicable to Commonwealth countries; (2) that applicable to the European Free Trade Association; (3) that applicable to the area of free trade with Ireland; and (4) the general treatment applicable to all other countries.

<sup>11</sup> For a detailed description of the regulations adopted for products subject to the common agricultural policy, see "*Las relaciones entre América Latina y la CEE*" (E/CN.12/L.48/Add.1/A).

the production of surpluses. These surpluses are sold on the world market through the concession of subsidies paid by the European Agricultural Guidance and Guarantee Fund (EAGGF).

The United Kingdom's entry into the Community would therefore involve substantial changes in the conditions for obtaining its sugar supplies. Within the transitional period established, the United Kingdom would gradually have to adopt the regulations of the expanded common market, replacing its imports from Commonwealth nations by imports from EEC countries. A first effect of this gradual process of substitution would obviously be to push up the cost of these imports, in view of the higher prices prevailing in the common market compared with those of supplies from third countries. Since for the present, at least, EEC's production surpluses are smaller than the total volume of United Kingdom imports, it must be assumed that the need to import sugar from third countries would continue and that these imports would be subject to the variable levies established by the Community regulation on sugar.

For the Caribbean countries exporting sugar to the United Kingdom, the situation presents several alternative possibilities. One is that by 31 December 1974 (when the United Kingdom's contractual obligations under the Commonwealth Sugar Agreement cease) they would lose all the advantages of preferential access and their exports would be subject to the arrangements contemplated during the period of transition, after which they would be governed by the regulations of the common agricultural policy. Another possibility is that, in view of the need to maintain a certain volume of imports from third countries, a special system be established in favour of the United Kingdom which would cover sugar imports from developing Commonwealth countries. In addition to the Caribbean countries, such an arrangement would probably cover other countries in the same area and in Africa and Asia. Although it would mean the curtailment of exports favoured by this special treatment, at least it would not involve, as in the case of the first possibility, a complete loss of the advantages they are currently enjoying in the form of import quotas and a guaranteed price which is higher than the world market price.

The negotiation of a special arrangement covering the United Kingdom's sugar imports from developing Commonwealth countries,

which would replace the Sugar Agreement currently in force for these imports, would seem to be the most feasible possibility of solving the problems deriving from the United Kingdom's entry into the Community, particularly as neither the possibility of continuing the Agreement in its present form nor that of completely eliminating the preferential ties between the United Kingdom and certain developing countries is any more likely to be accepted. Moreover, although at no time has the nature of the arrangements to be negotiated with developing countries linked with the United Kingdom's preferential system been expressly stated, it has always been understood that at least some of those countries would be eligible for some type of agreement of association with the expanded Community. Whether it is a case of special arrangements for specific products or an agreement of association, the fact remains that this would add several more links to the already long chain of discriminatory agreements that have characterized EEC's trade policy in the last few years.

#### (b) Bananas

As indicated above, nearly all the United Kingdom's banana imports come from Caribbean Commonwealth countries. Although these imports are exempt from the specific duty payable on imports from countries which are not members of the Commonwealth, it was also made clear that the decisive factor determining the origin of these imports is not the margin of preference in relation to third countries, but the existence of quantitative restrictions which exclude imports from other sources, except for a small over-all quota of 4,000 tons annually which is authorized from countries in the dollar area.

Therefore, the United Kingdom's entry into the Community gives rise to somewhat different problems from those examined in the case of sugar. Bananas are not among the commodities covered by the common agricultural policy (although one of the EEC countries proposed that they be included), but banana imports are subject to a common external tariff of 20 per cent *ad valorem* (the highest tariff for any of the group of tropical products), from which imports from the Associated African States and Madagascar are exempt. Within the context of this general system for EEC banana imports, however, some of the member countries have regulations in force which enable them to establish preferences in favour of certain supplier countries. Thus, through the quota system and the concession of licences, France imports

nearly all its bananas from Guadalupe and Martinique (French overseas provinces) and some countries in the franc area. Italy controls banana imports through a State monopoly and accords preferential fiscal treatment to those from Somalia. Lastly, the Federal Republic of Germany has a free tariff quota which has enabled it to continue importing the bulk of its bananas from Latin American countries.

The adoption of the common external tariff by the United Kingdom would therefore mean that banana imports would cost more, unless—as in the case of some of the present members of EEC—some special arrangement is concluded covering all or part of these imports. This, of course, would involve conflicting interests with the Associated African States (which have free access to EEC), on the one hand, and with Latin American exporters (which have a share in the free tariff quota of the Federal Republic of Germany), on the other. Moreover, any special arrangement in favour of United Kingdom imports, while not intensifying the discrimination against Latin American bananas (since they are already practically excluded from the United Kingdom market), would have at least the effect of increasing the circle of interests favouring maintenance of trade discrimination between developing countries and, therefore, of postponing a solution to the problem of access for tropical products to the markets of developed countries.

#### (c) *Citrus fruit*

In contrast with the two commodities examined above, exports of citrus fruit account for a smaller share of the Caribbean countries' export earnings, although this is no reason to underestimate the advantages which free access to the United Kingdom market would represent for these countries. From the standpoint of third countries (i.e., countries not covered by preferential arrangements), the tariff treatment for citrus fruit in the United Kingdom and EEC is fairly restrictive; the duties range from 3 to 18 per cent *ad valorem* in the United Kingdom and from 6 to 20 per cent in EEC, with seasonal variations in both areas. While United Kingdom imports from the Caribbean countries (and other Commonwealth nations) are duty-free throughout the year, EEC has negotiated a number of preferential agreements with other countries, according them a reduction in the common external tariff for each of the products in this group, which also varies according to the season. The first two preferential agree-

ments according tariff concessions for citrus fruit were negotiated with Tunisia and Morocco, which were given an 80 per cent reduction in the common external tariff. More recently preferential agreements involving a 60 per cent reduction in the common external tariff were negotiated with Spain and Israel. No conclusive results have been obtained in the discussions in GATT on whether or not the agreements with Tunisia and Morocco are compatible with the General Agreement (which were initiated in mid-1969); on the other hand, the waiver requested by EEC to enable it to grant preferential treatment to Spain and Israel was rejected by the majority of the members of GATT. EEC announced its intention of seeking an understanding with Spain and Israel with a view to completing trade arrangements that would enable it to extend some form of preferential treatment to citrus fruit producers in the Mediterranean. Therefore, in the negotiations for the United Kingdom's entry into the Community, consideration may be given to the bases for an agreement of broader scope that would include other developing countries that are exporters of citrus fruit.

#### (d) *Other commodities*

Coffee beans and cocoa beans are of little importance among the Caribbean exports in respect of which, as stated previously, the United Kingdom accorded some concessions during the Kennedy Round. Prior to these concessions, Commonwealth exporting countries enjoyed free access to the United Kingdom market, while other exporters had to pay a specific duty equal to approximately 4 per cent *ad valorem* for coffee and 3 per cent for cocoa. The reduction to the equivalent of about 2 per cent *ad valorem* for coffee and the elimination of duties on cocoa mean that the tariff treatment for these products is more favourable in the United Kingdom than in EEC. In the Community, imports of these products from the Associated African States and Madagascar are duty-free, but imports from other sources are subject to the common external tariff of 9.6 per cent *ad valorem* for coffee and 5.4 per cent for cocoa.<sup>12</sup> Therefore, the United Kingdom's entry into the Community involves the need to consider not only the position of the Caribbean countries but

<sup>12</sup> The new agreement signed by EEC and the Associated African States and Madagascar stipulated a reduction in these duties to 7 per cent for coffee and 4 per cent for cocoa, which came into force on 1 January 1971.

also that of other developing nations (mainly Latin American) exporting coffee and cocoa, which would be affected by the application of the common external tariff in the EEC expanded market.

##### *5. Special preferences and reverse preferences*

The General Agreement on Tariffs and Trade, which entered into force in 1947, specified that the general application of most-favoured-nation treatment between member countries did not require the elimination of the system of tariff preferences in force between the United Kingdom and Commonwealth countries. Since then, the United Kingdom preference area has not expanded; on the contrary, in some respects it has shrunk, through the equalization of the trade treatment applied to various products, without discrimination as to country of origin.

The trend in the Community has been very different; since its establishment in 1958, it has been negotiating an extensive system of preferential trade agreements which now cover twenty-eight countries. Some of these preferential agreements include the elements and requirements for the establishment of a customs union or a free trade area among the participants and, therefore, have been approved by GATT. In many other cases, there have been differences of opinion in GATT as to whether or not these agreements are compatible with the regulations governing customs unions and free trade areas, and they have been neither approved nor rejected by GATT.

The lack of any decision firmly establishing the compatibility or incompatibility of some of these preferential agreements with GATT principles accounts in large measure for the failure to comply with the recommendation on the gradual elimination of special preferences included in annex A.II.1 of the Final Act of the first session of UNCTAD. In fact, not only have no steps been taken to eliminate the special preferences that had been negotiated up to 1964 within a pre-established period, but, quite the reverse, the spread of these agreements gathered new impetus, so that the representation in GATT of the countries which now have preferential ties with EEC is such that a decision in the matter may possibly be swayed in their favour.

The expansion of EEC with the entry of the United Kingdom and other European countries might well give a new and greater significance to the question of special preferences. First, the preferential market for countries which now

have free access to the present EEC area would be considerably expanded; secondly, a certain number of developing countries which have preferential ties with the United Kingdom might be included in the expanded Community, thereby strengthening the group of countries which are interested in maintaining discriminatory treatment against other developing countries.

Under present conditions, it would seem that the solution to the problem of the subsistence of special preference would depend on the attitude assumed by the United States with respect to developing countries which are parties to these arrangements. In the preliminary phase of the negotiations for the establishment of a system of general preferences for exports of manufactures and semi-manufactures from developing countries, the United States was prepared to exclude from preferential treatment developing countries that refused to accept the undertaking to eliminate the special preference agreements to which they were parties within a period of five years. The opposition to this approach induced the United States to change its attitude in part along the following lines:

“The representative of the United States of America announced that his country no longer insisted that special preferences be fully eliminated over a five-year period for countries enjoying such preferences to be eligible to receive generalized preferences from it. His Government had therefore decided to permit countries now receiving special preferences to be included as beneficiaries under the United States’ scheme from the outset. He stressed that this announcement did not affect the United States position with regard to reverse preferences, which remained unchanged. His Government recognized that implementation of the generalized preference schemes would go a long way toward eliminating existing special preferences, especially in the field of manufactures, and hoped that progress in this field would continue.

However, he said that his country continued to oppose special preferences. If trade under special preferences in items covered by the scheme grew and assumed significant proportions, the United States would then have to declare the beneficiaries of such special preferences ineligible under his country’s scheme. Furthermore, if special preferences were maintained by other countries, the

United States reserved the right to extend comparable special preferences".<sup>13</sup>

This statement, while defining the United States' position with regard to special preferences, also reaffirms its opposition to the maintenance of reverse preferences. In actual fact, the tariff concessions granted by developing countries to developed countries with which they maintain preferential ties not only involve an element of reciprocity which is contrary to the principle established in article XXXVI, paragraph 8, of the General Agreement on Tariffs and Trade, but they also constitute discriminatory treatment against all other countries not parties to such arrangements and, in particular, they jeopardize the possibilities of a greater expansion of reciprocal trade between the developing countries themselves. These are not, of course, the only negative aspects of reverse preferences; as has also been mentioned, they tend to encourage the continued existence of predominantly agricultural economies, hindering industrialization in developing countries, and contrary to what might be expected, the imports favoured by reverse preferences are generally more costly than imports of similar products from other sources.<sup>14</sup>

In any case, the point here is that the problem of reverse preferences was not resolved during the negotiations for the establishment of a system of general preferences, but a compromise was reached by virtue of which consultations will proceed with a view to finding adequate solutions before such preferences are put into effect. In the "Agreed conclusions of the Special Committee on Preferences", it is stated that:

"The Special Committee notes, that consistent with Conference resolution 21 (II), there is agreement with the objective that in principle all developing countries should participate as beneficiaries from the outset. Notes that the attainment of this objective, in relation to the question of reverse preferences, which remains to be resolved, will require further consultations between the parties directly concerned. These consultations should be pursued as a matter of urgency with a view to finding solutions

<sup>13</sup> Report of the Special Committee on Preferences on the second part of its fourth session, Trade and Development Board (TD/B/329/Add.4), p. 4.

<sup>14</sup> See "Latin America and the second session of UNCTAD", *Economic Bulletin for Latin America*, vol. XIII, No. 1 (June 1968), and "Economic integration and preferential trade: the Caribbean experience", *The World Today*, The Royal Institute of International Affairs London, October 1969.

before the implementation of the schemes. The Secretary-General of UNCTAD will assist in these consultations with the agreement of the governments concerned."<sup>15</sup>

Such consultations could proceed concurrently with the negotiations between EEC and the United Kingdom. It seems reasonable to think that these negotiations would provide an excellent opportunity to review all the problems related to special preferences, reverse preferences and, in general, the liberalization of conditions of access to the markets of developed countries for products of developing countries. Moreover, the intensified activity of the organs of the Trade and Development Board (particularly the Committee on Commodities and the Committee on Manufactures) and of the Agricultural Committee and the Committee on Trade in Industrial Products of GATT over the past two years has yielded an accumulation on studies and research which provide an adequate basis for the Governments, at the policy-making level, to adopt the necessary decisions in order to be able to comply with the various commitments accepted in connexion with world trade.<sup>16</sup>

#### 6. Expansion of trade with other Latin American countries

For reasons both political and economic, the Caribbean countries have in recent years displayed a readiness to establish ties with other Latin American countries or to extend those already in force. The first move in this direction came early in the 1960s when the United Kingdom began negotiating for entry into EEC. Around the same time two Caribbean countries acquired their independence, whereupon it became obvious that some kind of political framework was needed that would allow them to participate actively in, and identify themselves with, the regional groupings

<sup>15</sup> Report of the Special Committee on Preferences on the second part of its fourth session (TD/B/329), p. 8.

<sup>16</sup> The Director-General of GATT, referring in particular to the programme of work adopted by the Contracting Parties of GATT at its twenty-sixth session, said that the Governments now have studies at their disposal on the nature of tariff protection in industrialized countries, including the problems of agricultural protectionism, and proposals concerning questions related to non-tariff restrictions, all of which would facilitate the adoption of decisions for the lowering of trade barriers for developing countries. See "Trade of the developing countries: opportunity and response", address by Mr. Olivier Long, Director-General of GATT, to the Indian Institute of Foreign Trade, New Delhi, on 12 November 1970 (press release GATT/1070).

which defend the interests of developing countries while at the same time investigating the possibilities of establishing new trade relations so as to offset the gradual disappearance of the preferential treatment they had been receiving from the United Kingdom. Recent years have therefore seen Barbados, Jamaica and Trinidad and Tobago becoming members of the Economic Commission for Latin America (ECLA), the Organization of American States (OAS) and the Inter-American Development Bank (IDB) and thus taking part in all the region's economic co-operation agencies. Similarly, these three countries, along with Guyana in the capacity of observer, acquired membership of the Special Committee on Latin American Co-ordination (CECLA) which in the past few years has been defining a joint Latin American position and promoting a united approach towards problems involving the interests of developing countries.

At the same time, the Caribbean countries have been taking steps to develop and strengthen subregional co-operation, with the establishment of the Caribbean Free Trade Association, the East Caribbean Common Market and the Caribbean Development Bank.

This move towards greater economic co-operation between Caribbean countries and the rest of Latin America has so far mainly taken the form of participation in regional organizations and in a number of joint activities sponsored by specific United Nations agencies, particularly UNCTAD. There has, however, been little or no attempt to establish any practical system of trade co-operation, except for the trade missions which certain Latin American countries have sent to the Caribbean. There can be no denying that an extension of trade links between these two groups of countries is bound to come up against rather serious difficulties. Even recently, Caribbean exports to other Latin American countries barely accounted for 1.3 per cent of the value of their total exports between 1966 and 1968 and, although imports from those countries represent a much larger share (21.5 per cent during the period indicated), this is largely attributable to the considerable volume of crude petroleum which Trinidad and Tobago imports from Venezuela and Colombia for refining and re-export to developed countries.

The fact that so little is exported to other Latin American countries is very much an indication of how competitive the market is for most of the products involved (sugar, bananas, citrus fruit, coffee, etc.), which are also ex-

ported by other Latin American countries and in which there is a fairly high degree of self-sufficiency. Even in those rare cases where Latin American countries purchase some of these products, the Caribbean exporters find more attractive markets in the United Kingdom and Canada, either because they receive tariff preferences or because they benefit from traditional outlets inherited from their recent colonial past. Although it is true to say that the United Kingdom has lost some of its paramount importance as a market for Caribbean products in recent years, this is largely due to the appearance of new exports such as bauxite and aluminium, controlled by private foreign investors (mostly from the United States), and to the opening up of the United States market as an outlet for part of its sugar exports.

Imports too, excluding the crude petroleum purchased from Venezuela and Colombia, remain at a relatively low level. Naturally, the fairly wide margin of preference accorded by the Caribbean countries to imports from the United Kingdom and other countries of the British Commonwealth acts as a virtually insuperable obstacle to imports of Latin American products. As has already been pointed out, the modifications which the Caribbean countries have made to their tariff system since their independence have not affected the absolute or relative margin of preference in favour of Commonwealth countries, so that no real effort has been made to reduce or alleviate the trade discrimination against imports from the rest of Latin America. When this discriminatory policy is combined with the greater efficiency and productivity of developed countries, it is easy to appreciate the kind of obstacles that the other Latin American countries would have to overcome in order to sell products on the Caribbean market.

The competitive nature of most export products and the preferential ties with Commonwealth countries (especially the United Kingdom) are not, however, the only obstacles to an expansion of reciprocal trade between the Caribbean countries and the rest of Latin America. Other more or less significant factors include the lack of knowledge of the markets, the poor state of communications and transport, the limited credit and banking facilities and even, in certain cases, the existence of frontier problems or territorial disputes.<sup>17</sup>

<sup>17</sup> On these points, see also "The relevance of Latin America to the foreign policy of Commonwealth Caribbean States", *Journal of Inter-American Studies*, vol. XI, No. 2 (April 1969).

A solution to many of these problems could be sought through bilateral or multilateral negotiations following a certain amount of research and study on the precise nature of the obstacles and the possible ways of dealing with them. The trade negotiations that were embarked upon in GATT a few years ago between thirty-three developing countries (including Jamaica, Trinidad and Tobago and nine other Latin American countries) are a further example of multilateral dealings from which more substantial results could be expected than have been forthcoming so far. The two Caribbean countries participating in them, however, have yet to submit the lists of products on which they would be prepared to negotiate.

### 7. Main features of trade policy

The following points constitute a very broad summary of the main features of the trade policy of the Caribbean countries over recent years:

(1) Maintenance of the present preferential arrangements with the United Kingdom, particularly as regards agricultural exports, both because of the preponderance of these products in their total exports and because they affect the activities that generate most employment;

(2) Diversification of the export markets, so as to soften the potential impact of the United Kingdom's entry into EEC and of possible changes in existing preferential arrangements;

(3) Measures designed to introduce a gradual process of import substitution in respect of certain basic requirements and to promote local production of a number of manufactured goods for domestic consumption and export;

(4) A liberal policy of incentives for foreign investment, both in the primary sector and in industry and tourism;

(5) A policy of economic co-operation and regional integration, mainly through the Caribbean Free Trade Association.

The nature of the preferential arrangements providing outlets in the United Kingdom for certain basic Caribbean exports have already been discussed, along with some of the problems that might arise from the United Kingdom's entry into EEC. One of the fundamental concerns of the Caribbean countries has been precisely to maintain these special ties, especially in view of the possible impact on their exports of the adoption of the com-

mon agricultural policy, on the one hand, and of competition from other suppliers (such as the Associated African States), which would have free access to the United Kingdom Market, on the other. As the negotiations now stand, however, it is not possible to say either what amendments will be made to the Commonwealth preference system or what kind of compensation the Caribbean countries will receive in the enlarged EEC market.

A concern for their future status in the United Kingdom's market and the requirements of their own economic developments have induced the Caribbean countries to give priority to measures that might contribute to a greater diversification of their exports and potential outlets. In the main, they have gone about this in two ways. In the first place, they have drawn up lists of products whose importation is strictly prohibited or subject to individual permits granted in accordance with domestic requirements. Secondly, by granting exemptions from customs duties and other taxes for fairly long periods and repatriation guarantees for foreign capital and profits, they have maintained a liberal attitude towards foreign investment. Recently, however, a major change was brought about in the foreign investment policy when the Government of Guyana took steps to acquire a greater share of the bauxite mine in the country by taking over control of 51 per cent of foreign investment in the sector.

#### (a) Incentives for foreign investment

Legislation providing incentives for foreign investment has been the instrument most widely used in the Caribbean countries to promote the diversification of production and economic growth. Because of differences in the *modus operandi* and scope of the concessions granted, some degree of harmonization is required if further progress is to be made in the economic integration of the region. The main concessions are described below.

(i) *Income tax.* In Barbados, subject to Government approval, an enterprise may opt for exemption from income tax for ten years from the date on which it begins production, or for total exemption for the first seven years, two-thirds exemption for the eighth year and one-third for the ninth year, from a date chosen by the enterprise within three years of its beginning production. In Guyana, the income tax exemption runs for five years from the date of its approval, but it may be extended for a further five years; gold and

diamond enterprises, however, are not eligible. In Jamaica there are two alternatives: either total exemption for seven years, or total exemption for four years from a date chosen by the enterprise within three years of its beginning production. In the case of a new product, the exemption may be granted for ten years, and for fifteen years in the case of enterprises located in specially designated areas or whose production is destined for export. In Trinidad and Tobago, manufacturing activities designated as "pioneer industries" are granted an initial exemption for five years, extendible for up to five years if warranted by circumstances. In the case of the cement, fertilizer, and petrochemicals industries, however, exemptions have been granted for ten years from the outset.

(ii) *Dividends.* In general, all the countries grant exemptions from income tax on dividends distributed to shareholders during the period that the enterprise is exempted from income tax, with certain regulations governing the date of their distribution.

In addition, all the countries have a fairly complex régime for the treatment of interest paid by enterprises and the depreciation of assets, which supplement the incentives described above.

(iii) *Customs duties and charges.* In Barbados, all imports of machinery, equipment and construction materials required for the installation of an authorized industry, including supplies for the repair and replacement of equipment, are exempt from customs duties and charges for a period of ten years from the date of authorization. Enterprises producing exclusively for the export market are granted exemptions for an indefinite period and irrespective of the supply of local substitutes. In Guyana, exemptions from customs duties and charges are granted in respect of machinery and equipment directly associated with the establishment and operation of an enterprise, but not for the replacement or repair of equipment. They are granted at the request of the authorized enterprise for a period of up to ten years for mining enterprises and up to five years for other enterprises. In Jamaica, exemptions range between 50 and 100 per cent of customs duties and charges in respect of all the elements required for the construction, alteration, reconstruction or expansion of an industry, but not in respect of supplies for the repair or replacement of equipment. Exemptions are not granted, however, for materials available

locally provided they are in good supply and comparable with imported materials as regards price and quality. Complete exemptions (100 per cent) are granted for seven years to enterprises that opted for a seven years' exemption from income tax (see point (i) above), or for six years to the enterprises opting for the second alternative. For industries producing new products or exclusively for export, exemptions run from ten to fifteen years, and cover supplies for the repair and replacement of equipment. In Trinidad and Tobago, exemptions are granted initially for five years and may be extended for a further five years when justified in respect of all equipment associated with the construction, alteration or expansion of an industry, but not in respect of supplies for the repair of equipment.

(iv) *Raw materials.* Barbados grants exemptions from customs duties and charges on raw and semi-processed materials for industries producing exclusively for export, subject to the availability of suitable local substitutes in good supply. In Guyana, the incentives to industry do not include exemptions covering raw materials, but the Customs Act authorizes the Government to grant exemptions in specified cases. In Jamaica, exemptions on raw materials are granted only to export industries. In Trinidad and Tobago, as in Guyana, the legislation providing incentives to industry does not include exemptions in respect of raw materials imports, but customs regulations provide for exemptions for certain specified industries.

This brief outline of the concessions granted to foreign investment illustrates the scope of the various incentives used by the Caribbean countries to stimulate the inflow of foreign capital and the main differences in the approach taken by the individual countries. In 1969, studies were initiated to harmonize the legislation of the respective countries, and negotiations are at present well advanced regarding the eventual establishment of a uniform régime for exemptions from income tax and import duties and charges, which would constitute the first two stages of the harmonization programme.

#### (b) *Regulations governing exports*

As a general rule, most of the Caribbean countries' exports do not require an export licence, although Jamaica and Trinidad and Tobago require one for a few products (chiefly agricultural commodities). The foreign exchange earned by exports to countries outside

the sterling area must be sold to the Central Bank. In Jamaica and Trinidad and Tobago, some exporters may be authorized to retain a part of their export earnings in a special account in order to facilitate payments abroad in respect of import operations; this is mainly the case of the petroleum companies in Trinidad and Tobago. All the countries prohibit exports to Rhodesia and South Africa, and in August 1968 Jamaica also prohibited exports to the socialist countries of eastern Europe, North Viet-Nam and Cuba.

### (c) *Regulations governing imports*

The regulations on imports are more wide-ranging and are subject to frequent modification. All the products not included in a negative list may be imported under the system of a general open licence. The negative list comprises different products in each country and has been added to over the years as new industries have been established under the protection of industrial promotion legislation and incentives to foreign investment. At present, the major products on the list are coffee, sugar, certain vegetables, meat, cereals, copra, vegetable and animal fats and oils, petroleum products, construction materials, certain chemicals, radio receivers and household electrical appliances. Licences may be granted to import products included in the list if justified by prevailing conditions in the domestic market. Import licences must be obtained for imports from the socialist countries of eastern Europe and mainland China to Guyana and Jamaica. All the Caribbean countries prohibit imports from Rhodesia and South Africa.

### 8. *Export promotion policies*

The preparation and formulation of export promotion policies and programmes are still in the very early stages in all the Caribbean countries. In general, the main export promotion measures are confined to the fiscal and tariff incentives established in the legislation covering industrial development and foreign investment described above. Some of the countries, however, have already taken decisions to make their export promotion policy more consistent and effective. Trinidad and Tobago has set up an Export Promotion Division within the Ministry of Industry and Commerce which works in close co-operation with the Standards Bureau and the Industrial Research Centre (part of the University of the West Indies) and is responsible for working out the basic

direction of export promotion policy. The Government is also encouraging the formation of co-operatives in the artisan-type industries and the establishment of an export company to assist local small-scale manufacturing industries to place their products in external markets. In the other Caribbean countries a number of measures are being considered for setting up suitable institutional machinery to promote exports of manufactures, as a counterpart to the incentives granted under the legislation covering industrial development and foreign investment.

### 9. *Economic co-operation and regional integration*

The agreement establishing the Caribbean Free Trade Association came into force on 1 May 1968, the members comprising the four Caribbean States and other territories in the region (Antigua, Dominica, Grenada, St. Kitts-Nevis-Anguilla, St. Lucia, St. Vincent and Montserrat). Negotiations have been completed regarding the admission of British Honduras (Belize) to the free trade area and, studies are being prepared on the possibility of admitting the Dominican Republic, at the request of the Dominican Government.

Under the provisions of the agreement, the transitional period for the four larger member countries (Barbados, Guyana, Jamaica and Trinidad and Tobago) lasts five years, during which time they are to reduce the tariff levels existing at the time the Agreement entered into force by 20 per cent each year; for the other territories, the transitional period is ten years, with tariffs to be lowered by 50 per cent on 1 May 1973 and completely eliminated on 1 May 1978. On 1 May 1970, the four larger countries had effected two annual reductions of 20 per cent in their tariffs.

The implementation of the Caribbean Free Trade Association Agreement appears to be progressing in accordance with its objectives. Intra-Area trade during the first two years following the entry into force of the Agreement has expanded quite significantly and, as noted earlier, progress is being made towards harmonizing the fiscal incentives existing in the legislation of the different countries and territories. In this respect, it has been agreed that a country may apply legislation that is more restrictive, but not more liberal, than that included in the arrangements on harmonization, although exceptions would be made for some of the less developed territories in the region.

The East Caribbean Common Market (ECCM) was established within the Caribbean Free Trade Area and comprises only the Caribbean countries which still have the status of territories (i.e., excluding Barbados, Guyana, Jamaica and Trinidad and Tobago). The member territories of the ECCM have completed negotiations on the adoption of a common external tariff and the harmonization of foreign trade policies.

With respect to financial matters and the promotion of development, the integration process in the Caribbean has recently been broad-

ened with the establishment of the Caribbean Development Bank, which began operations in mid-1970. Canada and the United Kingdom participate in the Bank, as well as the members of CARIFTA, and approval was recently given to the admission of Colombia.

The establishment of this Bank is an extremely positive step towards promoting the development of the Caribbean countries and considerably strengthens the financial co-operation received hitherto from the Inter-American Development Bank by certain countries (Barbados, Jamaica and Trinidad and Tobago).

## ECLA ACTIVITIES IN CONNEXION WITH THE DEVELOPMENT OF LATIN AMERICA'S WATER RESOURCES

### 1. Introduction

The Economic Commission for Latin America adopted resolution 99 (VI) in 1955 recommending that the secretariat, in co-operation with the appropriate bodies of United Nations agencies and other institutions concerned, carry out a preliminary examination of water resources in Latin America, and of their present and future utilization.<sup>1</sup>

The Natural Resources and Energy Programme of the Commission was entrusted with this task. A Joint Survey Group on Water Resources was set up comprising staff members from the Programme and the experts that have been made available to the Group since it began operating (1957) by the Bureau of Technical Assistance Operations (now the Office of Technical Co-operation—OTC) and the World Meteorological Organization (WMO). Since 1965 the Group has also included an expert from the World Health Organization (PAHO/WHO).

The main spheres of action have been: (a) general surveys of countries (or broad regions), in which the role of water resources in economic and social development is analysed; (b) technical assistance provided at the request of Governments; (c) co-operation with advisory groups on economic and social planning; (d) participation in symposia, meetings, seminars, etc.; (e) research and studies of interest to all countries or groups of countries in the region.

A secretariat document<sup>2</sup> submitted to the Commission at its tenth session in May 1963 contained an account of the activities of the Joint Survey Group, an appraisal of the main water resources problems facing the region and suggestions regarding possible ways of solving

them. Since then, new missions and studies covering most of the countries and representative situations in this field have been completed.

It would seem that the time has now come for a fresh appraisal of these activities and a review of the progress made in this sector over the past decade, with a view to establishing guidelines for future action. This is the purpose of the present document, which endorses the concepts expressed in the previous version.<sup>3</sup>

It will be noted that even though gradual progress has been made on nearly all fronts and there is now a greater awareness of the seriousness of the most critical problems, many of the defects observable in the institutional system eight years ago are still there, and water resources development planning has not gone beyond the initial stages. Nevertheless, many countries recognize the need to review the criteria to be applied to water resources development, and the aim of this article is to help in that task.

Summaries of the principal missions carried out since the report was presented at the tenth session are appended as an annex, so that the two together provide a picture of the region as it was gradually revealed to the missions working in the field.

### 2. Water use planning

For many years the method of utilizing water resources in nearly all countries (particularly the less developed States) has centred mainly on the engineering aspects of permanent works and it is only recently that greater concern has been shown for over-all water resources planning. This is the outcome first, of the fact that the problems of shortages or of a superabun-

<sup>1</sup> Other relevant resolutions are 131 (VII) on utilization of rivers and lakes, 164 (VIII) on planning and utilization of hydroelectric resources, and 166 (VIII) and 204 (IX) on water resources.

<sup>2</sup> "Los recursos hidráulicos de América Latina: Re-seña y evaluación de la labor realizada por la CEPAL" (E/CN.12/650), May 1963.

<sup>3</sup> A first version of this document was presented at the Regional Technical Conference on the Role of Meteorological Services in Economic Development in Latin America, which was organized by WMO with the co-operation of ECLA (Santiago, Chile, December 1970).

dance of water have become more acute and, secondly, of the determination of Governments to solve these problems and their ability to do so with the greater capital and technical resources now available.

Latin America is no stranger to this new thinking; its trained professionals are raising their eyes from the narrow view of the individual project, such as dams, hydroelectric plans, canals and drinking water systems (in which they have generally shown great ability), to the broader horizon of water resources in general, their possibilities, their limitations and, above all, their direct links with economic and social development.

This requires, first of all, an adequate knowledge of the countries' water resources. It is obviously important to know the hydrometeorological cycle and its characteristics and to have accurate data on its distribution. Although water is a vital necessity, it has rarely been so precious as to justify carrying it over long distances. Thus its utilization is governed strictly by its geographical distribution and it is rarely consumed within a radius of more than a few dozen kilometres from its source. When it becomes relatively scarce, as is happening in many of the more densely populated areas in Latin America, it becomes increasingly important in planning. Moreover, the real value of water—as of other natural resources—can be appreciated only within the context of economic and social development and on the basis of clearly defined national and regional objectives that must be fulfilled.

Countries usually have more water resources and more information about them than might be thought. There are data which have not been utilized for want of processing and analysis. With appropriate legislation and proper water management and co-ordination between the institutions concerned with water resources, there is no doubt that a great improvement could be brought about, both in the extent to which the water resources are used and in the volume consumed.

### *3. Activities of the Joint Survey Group on Water Resources*

The Survey Group's activities have had one guiding purpose: to spread the idea among the region's technical and economic specialists that water resources should be properly and rationally used to increase the well-being of the population.

Several methods have been followed, from missions carried out by a single expert to investigate a particular question or to provide technical assistance in a particular field, to broadly based critical studies of substantive aspects of the question. The nucleus of the Group is an economist/co-ordinator, an expert in multipurpose water use, and a hydrometeorologist, to which specialists on the legal and administrative aspects of water resources, drinking water supply, irrigation and electricity have been added.

Joint teams composed of members of the Group and national experts have been set up, and the Group is co-ordinating its work with theirs, its principal aim being to ensure that the research on water resources and the concern about them thus awakened will continue and be intensified in the future and that water resources will be taken into account in the studies and decisions to be taken by the top-level over-all planning bodies.

In the country and regional studies, an attempt is made to analyse the role of water resources in economic and social development; and the availability of water is considered, as far as possible, by whole drainage basins and compared with present and future demand (ten- or fifteen-year projections). The utilization of water resources is dealt with by separate functions (household and industrial supply, irrigation, hydroelectric power production, etc.) and by geographical areas (analysis of water requirements for different uses compared with the supply available). Consideration is also given to the legal and institutional structure conditioning the activities of each supply authority and to co-ordination between them, and estimates are given for the amount of investment required to construct permanent works to meet a heavier demand for water. In studying multipurpose water use, the combination of water resources to fulfil different functions is discussed. The data on all these points, taken as a whole, suggest what policy guidelines are most suitable for each country, and the final recommendations focus on the steps that should be taken to facilitate policy formulation.

The Group has carried out general surveys of this kind in the following countries and regions: Chile, Northern Patagonia (Argentina), Ecuador, Venezuela, Bolivia, Colombia, Argentina, Peru, Uruguay, Paraguay, the Federal District of Brazil, the South Paraíba river valley (Brazil); and in Central America (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama).

The studies and research have been carried out in greater depth in some countries than in others, depending on the amount of information and background data available.

The technical assistance activities carried out by the Group at the request of Governments are not given in detail because of their number (approximately one hundred expert missions) and variety. Basically, they are geared to the economic and social aspects of the plans or projects on which advisory assistance is requested. These missions usually last several weeks and often require two or more experts working side by side. They are intended to clarify such points as what part the project (or plan) will play in the country's economy and in the region concerned; what alternative projects would achieve the same ends; whether the water use project clashes with or assists in the achievement of other purposes; profit-cost ratios, internal profitability and other financial aspects of the project; the volume of investment required for it in relation to other domestic needs; its effect on employment; its impact on the trade balance and the external payments position; whether or not the existing legislation and institutional set-up are suitable for carrying out the project; and so on. The technical side of the projects is not given detailed consideration; it is examined only to the extent necessary to check the soundness of the basic data and the feasibility of carrying out the projects, as conceived, with the existing techniques. The reports on such missions often bring out the weaknesses of the plan or project concerned and indicate what kind of supplementary studies are required. Thus, they usually contain a recommendation that more specific or prolonged technical and financial assistance should be obtained, such as that provided by the United Nations Development Programme (UNDP).

In addition to these specific missions carried out by members of the Survey Group, more general studies have been prepared on institutional and other questions.<sup>4</sup>

<sup>4</sup> "Water resources and their utilization in Latin America" (E/CN.12/501); "Systems of administrative organization for the integrated development of river basins" (E/CN.12/503); "Preliminary review of questions relating to the development of international river basins in Latin America" (E/CN.12/511); "Los recursos naturales en América Latina, su conocimiento actual e investigaciones necesarias en este campo" (E/CN.12/670); "La obtención y el uso de la información sobre los recursos hidráulicos en América Latina" (E/CN.12/861); and "Tendencias actuales de la organización administrativa para el riego" (E/CN.12/862).

The Natural Resources and Energy Programme has also co-operated in the work of advisory groups on economic planning; for example, members of its staff participated in the OAS/ECLA/IDB mission to Haiti in 1962, the mission to the Dominican Republic in 1965, the ILPES/ECLA missions to the state of Minas Gerais (Brazil) and Ecuador in 1969, and the mission to Bolivia in 1970.

Experts from the Survey Group have taken part in a total of about forty symposia, seminars, meetings, round-table discussions, etc., for many of which special documents were prepared.

Partly as a result of its activities in the energy field, ECLA has taken pains to gather basic statistics on water resources as a basis for special documents, such as the evaluation of hydroelectric potential presented at the first Latin American Electric Power Seminar, held in Mexico in 1961 (ST/ECLA/Conf.7/L.1.01), and "Latin America's hydroelectric potential", *Economic Bulletin for Latin America*, vol. XII, No. 1 (May 1967).

ECLA's annual publication, the *Economic Survey of Latin America*, always contains information, by country, on the growth of installed capacity and on hydro- and thermo-electric power generation. It also makes a brief mention of the projects under way and the power stations that are under construction, including hydroelectric plants, about which it gives such information as main characteristics, sources of financing, etc.

#### 4. *Water resources in the 1960s and current problems*

##### (a) *Knowledge of water resources*

Far more is known about the availability of water resources today than was the case a few years ago. In 1960, following a preliminary study made by the Water Resources Group in Chile, UNDP launched Chile's first project for extending the networks of hydrological and hydrometeorological observation stations, which made them much more efficient than before. Similar studies have since been carried out in Ecuador and Peru, others are currently under way in Central America, Colombia, Bolivia, the upper basin of the River Paraguay and the north-east of Brazil, and two more are planned for Paraguay and Uruguay. Along with others that are more limited in scope, these projects entail a total investment of over 27 million dollars, which explains why the region's water

measurement and observation services improved so much in the 1960s.

A recent ECLA study,<sup>5</sup> which compares the expenditure on meteorological and hydro-meteorological research of eleven Latin American countries with that of four industrialized countries, shows that the former spent 0.32 per cent of the gross domestic product and 1.69 per cent of gross domestic investment and the latter only slightly more—0.36 per cent and 1.94 per cent. Satisfactory though this may appear, it can also be argued that, in view of the region's relative backwardness in this respect, it should be spending much more. Such, in any event, is the opinion of most of the senior officials of the region's networks; that view was clearly stated at the Regional Technical Conference on the Role of Meteorological Services in the Economic Development in Latin America already mentioned.

A succession of national disasters involving water resources—the bursting of the Rincon del Bonete dam in Uruguay in 1959, the torrential rains and resulting floods in Rio de Janeiro in 1967, the Greater Buenos Aires floods in 1968, the drought in the central zone of Chile in 1967-1968, the Callejón de Huaylas avalanche in Peru in 1970, and the periodic droughts and floods in the north-east of Brazil, each in turn, have focused attention on the need to improve these services so as to learn more about how such natural phenomena operate and take systematic control measures. It is largely as a result of this that the projects described above have materialized. Once the emergency is over, however, financial restrictions are clamped down again and the services do not obtain all the support they seek. For this reason, there is some reluctance to introduce such new techniques as automatic recording equipment, man-made satellites, computers, etc., although they could provide most valuable assistance.

Two steps would therefore seem to be imperative: (1) to define a set of criteria for allocating resources for hydrological and hydro-meteorological research, and (2) to make the corresponding institutional and administrative system more flexible.

As regards the former of these objectives, efforts are being made to apply financial criteria, such as the cost-benefit ratio, although they are more appropriate to concrete projects;

<sup>5</sup> See "La obtención y el uso de la información sobre los recursos hidráulicos en América Latina" (E/CN.12/861), September 1970.

the kind of general research which is the basis for more advanced investigations should not be expected to be a profit-making operation in the short or medium term. As to the second objective there is hardly a single country that does not suffer from administrative conflicts and lack of co-ordination in the compilation, processing and publication of its statistical data, for which a perfect formula is not easily found.

What has been said above applies mainly to the study of rainfall regimes and surface water resources. Even less attention has been paid to ground water resources, although many semi-arid parts of the continent, which are also the most densely populated, could benefit greatly therefrom. Conscious of this fact, several countries are beginning to carry out special projects, and UNDP-sponsored studies are already under way in Jamaica, Argentina, Bolivia and Central America.

#### (b) *Drinking and industrial water supply*

The Charter of Punta del Este established ambitious targets for extending the region's drinking water supply, bearing in mind that this was one of the most effective means of improving health conditions; and at that time, about half the urban population and barely 15 per cent of the rural population had drinking water supply. Thanks to the efficient technical and financial assistance rendered by the Pan American Health Organization, the commitment made by the States at Punta del Este has been translated into action; 72 per cent of the urban and 18 per cent of the rural population now has drinking water supply. The respective targets were 75 and 50 per cent, which means that, in the urban areas at least, where water-borne diseases are more common, the goal has almost been attained. Unfortunately, however, this figure marks a number of shortcomings in terms of quality, extent to which individual households are supplied, bacteriological and chemical control, the steadiness of the supply, the pressure, etc.; there must therefore be no slackening of effort.

One of the first steps that it is advisable to take in order to encourage the expansion of the supplies is to fix realistic water rates that will at least cover the direct costs involved. This has the twofold advantage of preventing waste and reducing investment requirements.

#### (c) *Water for agriculture*

The growing inability of the agricultural sector to produce all the food and raw materials

needed, integrate the rural worker in the community and provide him with adequately remunerated employment has brought with it a new wave of interest in agriculture throughout the region, and some countries have already begun to introduce far-reaching institutional and technological changes.

Since the productivity of the soil depends on the water supply, there is practically no part of the region that does not suffer from problems—too much or too little water, supply at the wrong time of year, etc.—which vitally affect the farmer and where something could not be done by taking systematic steps to deal with the problems. These steps could be something relatively simple, like changing current practices for supplying water to the irrigation channels, or something of much vaster scope, such as the building of large-scale irrigation or flood-control structures.

It is estimated that, while there are 11 million hectares of irrigated land in Latin America, only 7.2 million—or 6 per cent of the total arable land—have “reliable irrigation”. An indication of the importance of irrigation is the fact that the irrigated area contributes 20 per cent of the value of the region’s agricultural production; FAO estimates that up to 1985, 60 per cent of total investment in land improvement in Latin America will be spent on irrigation works.

Aware of the effectiveness of a good irrigation project for increasing productivity and indirectly promoting economic development, the Water Resources Group has recommended that greater attention should be paid to economic and social questions when projects are being prepared, both to avoid the half-failures that have been so frequent in the region (projects that have never been completed, that have not been properly made use of, that have caused salination and waterlogging, that have become economic enclaves, etc.) and to ensure that the project constitutes the most economical of all the alternative ways of achieving the desired productivity, employment and other targets.

#### (d) *Hydroelectric potential*

Like the world average, the demand for electricity in Latin America has been growing at an annual 8 per cent, resulting in the rapid growth of increasingly efficient electricity services. The big increases in installed capacity recorded every year entail projects that are in themselves a justification for tapping the biggest concentrations of hydroelectric potential. The

surveying of potential resources and the planning of interconnexions, for example, have improved, since many of the biggest potential power sources are fairly far from the consumption centres. Since 1960, installed capacity has risen from around 7 million kW to 15 million—i.e., 40 per cent of total installed capacity. According to present information, installed hydroelectric capacity is barely 3 per cent of the economically usable potential, a huge natural resource on which many countries are basing major plans for the future. The continuing interest aroused by hydroelectric potential is easy to understand: the potential of the River Caroní in Guayana (Venezuela) was decisive in making this area an important centre of economic development; the huge hydroelectric plants built in the last few years have had a tremendous impact on the Brazilian economy; and the hydroelectric projects that have been completed or are planned in many different countries are a proof of a continuing interest in water resources.

Though at least two countries are already embarking upon nuclear power stations and several others are planning to do so, this source of energy is not expected to draw interest away from hydroelectric potential for the next ten years at least. In a continent where water supply involves serious financial problems for the community, hydroelectric plants will surely continue to provide a valuable contribution. Perhaps the only point that need be made is that there should be closer co-ordination at the planning stage between the two sectors involved in a hydroelectric plant—energy and water resources; not enough attention has been paid to such co-ordination in Latin America.

Multinational hydroelectric plants have been prominent among the projects thought to be most feasible in the context of Latin America’s integration process, although little has actually been achieved so far, and the biggest projects will be held up until adjustments are made or the political time is ripe.

#### (e) *Inland waterways transport*

Inland waterways transport is growing only slowly if not losing ground to other means of transport, as it is for example on the River Uruguay, the River Magdalena and in the case of the Argentine river freighters on the Paraná. In contrast, the Amazon river system, and rivers with big estuaries like the River Plate and the River Guayas continue to have an important role. International transport on the Paraguay-

Paraná river system is of particular importance, for it is Paraguay's only exit to the sea by water. Bolivia is studying the possibility of building a port on this system, which would give it too a navigable outlet to the sea.

There are substantial grounds for thinking that inland waterways transport has been neglected in transport plans, and in many cases it would be reasonable to take a new look at the traditional views on this form of transport.

(f) *Pollution*

In Latin America, the pollution of waterways is far from being the widespread problem that it is in industrialized countries like the United States, Japan and some European countries. Nevertheless, there are already some serious health hazards in the main urban-industrial complexes and on some rivers and beaches. The treatment of sewage and industrial wastes is still in its infancy, normally being left to the dilution capacity of bodies of water, which in some cases has been stretched well beyond its limits. It is essential that suitable measures should be taken in good time if greater damage is to be prevented.

(g) *Planning for integrated multipurpose water use*

The techniques of planning the water supply system (using the river and its tributaries to meet the demand) made considerable progress during the 1960s but, although a good number of Latin Americans have expertise in this respect, these techniques have been applied on a relatively small scale. Integrated multipurpose basin-wide development has been recognized as the ideal, but little has been done to make it a reality. Given that the need to emphasize regional planning, as a means of reducing disparities between regions, is becoming more and more accepted, all that would appear to be needed is to link regional and water resources planning more closely for both types of planning to gain greater force and effectiveness.

(h) *Institutional, legal and administrative matters*

Genuine progress in water resources planning has always been hampered by an institutional apparatus burdened with old habits, powerful vested interests and a shortage of qualified staff. This situation has been changing whenever there have been changes at the national level and under the stimulus of certain

large-scale projects. New organizational formulas are being put into effect for planning and developing water resources on a drainage-basin or regional basis, some countries have been laying the bases for national water resources planning.

In recent years, agreements have been concluded for the carrying out of studies on international river basins for multinational research projects, but no agreements have yet been signed for the construction of permanent works.

Virtually all the countries of the region are drafting or have recently approved new water regulations. The aim of the reforms is to take account of the physical realities of the hydrological cycle and to give the State more control so as to ensure that the water resources are managed in a way that is consistent with the aims of economic and social development plans. The opposition and resistance that these measures have encountered point up the need to identify all the interests that are at stake, not only from the legal standpoint but also from the political and economic standpoints.

5. *Some comments on the progress achieved and future tasks*

Now that it has made a critical analysis of the water resources situation in virtually all countries of the continent (location and availability of water resources, current use and future prospects, water resources planning, legislation and the institutional organization, etc.), ECLA has in a sense come to the end of one phase of its activities in connexion with water.

The country studies undertaken by the secretariat have been updated and expanded, and in some cases have led to seminars and round-table discussions. They have also served as guidelines for other, more comprehensive, studies using the same approach of integrated drainage-basin planning, with economic criteria being the predominant factor in deciding between alternative projects, and for the construction of permanent works. Their conclusions have been to some degree incorporated in national development plans, and their influence has been felt in a number of different ways. Some of these are: the greater role played by water resources experts in national planning offices; the adoption of economic criteria for the evaluation of projects; requests for technical and financial assistance for specific research; the expansion and improvement of hydrometeorological networks; institutional reforms and

making those that had been recommended as most important more far-reaching; the modernization of water codes; the revision of the rates charged by public utilities connected with water use (drinking water supply, sewerage, electric power, irrigation, etc.), with a view to putting them on a sound financial basis and expanding the services; higher priority for multipurpose water use projects; increase in research into and the use of ground water as an alternative source of supply to surface water; increased awareness of the dangers inherent in the growing pollution of water courses, lakes and beaches, etc.

Despite so much progress, however, it must be admitted that the over-all water resources picture in the region still presents great contrasts, and that while some countries are reasonably consistent in the way they tackle the development of their water resources and have established priorities and even national plans for them, others are vainly trying to find new ways of dealing with the question, and in the meantime are proceeding by trial and error and frequently neglecting important matters that lead to the periodic disasters mentioned above.

It is not easy, or even perhaps appropriate, to offer general recommendations; however, in the light of its experience the Water Resources Group finds three spheres of action that would

appear to require priority attention from countries:

(i) Continuing to expand, classify, process and disseminate hydrological and hydrometeorological data, as the only sound means of acquiring information on water resources and ensuring their economic use;

(ii) Promoting the use of modern water resources planning techniques within the context of national planning abandoning improvisation and the empirical approach, so as to derive the full benefit of the impetus that water resources can give to regional development;

(iii) Continuing to modify existing legislation and institutional systems with a view to developing the kind of water management that will make it possible really to apply all the policies and plans that exist on paper.

The Water Resources Group could assist in these areas by strengthening the capacity of countries and of advisory groups to deal with the most pressing specific problems, supply solutions to them, propose pre-investment studies, and help to identify, formulate and implement specific programmes and projects.

In particular, the Water Resources Group is in a position to assist in the development of multinational activities—studies and investment projects—that by their nature require special liaison and advisory services.

## Annex

### WATER RESOURCES IN SELECTED COUNTRIES AND REGIONS

*This annex summarizes the experience and observations of the missions to Argentina, Peru, Uruguay, Paraguay, the Federal District of Brazil, the six countries of Central America and the South Paraíba river basin.<sup>a</sup> The information supplied refers in general to the situation that existed at the time the studies were carried out.*

#### SOUTH AMERICA

##### Argentina

This mission was sponsored by the Federal Investment Council (Consejo Federal de Inversiones—CFI), an organization concerned with the study of water resources problems as part of its task of drawing up an inventory of natural resources.

The geographical scope and diversity of the problems involved and various unavoidable difficulties

delayed the presentation of the preliminary version of the report (1965). It was published *in extenso* by the CFI after comments had been obtained from many organizations and professionals and the data had been brought up to date.<sup>b</sup>

The River Plate Basin contains 67 per cent of the country's population and most of its production activities; however, the per capita value of production is higher in many other basins, such as those of the River Tumuyán which runs through the east-central and southern part of the province of Buenos Aires, the Chubut-Senguier-Chico, the Diamante, etc.

<sup>a</sup> In the document "Los recursos hidráulicos de América Latina: Reseña y evaluación de la labor realizada por la CEPAL" (E/CN.12/650), a very brief account is given of the missions carried out in Chile, North Patagonia, Ecuador, Venezuela, Bolivia, Colombia, Guyana and Haiti.

<sup>b</sup> Consejo Federal de Inversiones, *Los recursos hidráulicos de Argentina, análisis y programación tentativa de su desarrollo*, Buenos Aires, 1969.

The general trend of the isohyets is from north to south; in the Misiones area, the level of rainfall is 1.600 mm, shading off towards the Andes. The lowest rainfall (less than 100 mm) is in the north east of the country, to the east of Salta, Catamarca, La Rioja and San Juan. Annual rainfall is less than 200 mm. for 31.1 per cent of the country's total area, and less than 500 mm. for 52.4 per cent.

Ground water supplies play a very important role in some areas, particularly the provinces of Mendoza and San Juan, which have over 9,000 wells with an output of more than 120m<sup>3</sup>/sec., more than the total surface flow of the rivers of the same name. Ninety per cent of this is used for irrigation with very satisfactory results. Unfortunately, the use of ground water is unplanned and not properly controlled. Other areas of hydrogeological importance are La Rioja and Catamarca; Tucumán, western Salta and south-east Jujuy; the Chaco-Pampeana area etc.

Quite a high proportion of the urban population (75 per cent) has piped drinking water supply. In contrast, only a very small proportion of the rural population has drinking water. The volume of the supply varies widely from 700 litres per head a day in the Buenos Aires area to little more than 100 litres per head a day in Comodoro Rivadavia, Galvez and Rafaela. The lack of water-meters on the piped supply means that an estimated 25 per cent of the supply is lost or wasted. Argentina is one of the foremost countries in the region in terms of the quantity and quality of public water supply.

No central government action in the field of irrigation was initiated until the second decade of the century with the promulgation of the national irrigation law and the creation of the National Irrigation Department, which was the precursor to the present State Water and Electric Power Enterprise (Empresa del Estado de Agua y Energía Eléctrica).

More than 75 per cent of a total irrigated area of nearly 1.2 million hectares is watered by provincial and private subsystems of the main irrigation systems, although around 60 per cent of existing reservoir capacity in 1965 had been built by the Government.

Large sums have been invested in basic irrigation works for an area of about 150,000 hectares which has not yet been brought under cultivation. This shows that, with conditions as they are, public investment in infrastructure works, whether at the national or at the provincial level, is not enough by itself; it must be accompanied by a dynamic policy in respect of credit, agricultural extension, assistance to farmers, and marketing facilities.

Roughly 18 per cent of the total volume of surface water in the country runs through the zones with the least rainfall and the highest level of evaporation, comprising about 190 million hectares.

In view of the quality of the soil, it is estimated that about half this enormous area could be used for agricultural purposes, but only a very small proportion (less than 2 per cent) could be irrigated economically under present market conditions.

The area under irrigation is increasing slowly (1 per cent a year on average) but its share of

agricultural output is growing more quickly because of the value of the crops grown. Thus, at the present time, the area under irrigation accounts for slightly more than 4 per cent of the country's total arable land, but contributes nearly 30 per cent of agricultural output. Nearly 10 per cent of this area is irrigated with ground water.

The situation varies widely, of course, from one province or area to another, but the most notable and frequent deficiencies are in the planning and execution of the main infrastructure works and in the volume of irrigation. Generally speaking, it can be seen that, while a good deal of attention has been paid to some of the engineering aspects of irrigation projects, little or no consideration has been given to their economic viability.

Because of this lack of economic analysis at the project stage, there have frequently been serious gaps in the plans for irrigation schemes. For instance, reservoirs have been planned and built without any connexions to the channels that would spread the water, and work has been started on large structures on the basis of incomplete projects and with no financial provision for the auxiliary works without which they could not be used.

Seeing that there has been a lack of programming and co-ordination of parts of individual plans and projects, it is not surprising that, at the national level, no priorities have been laid down for carrying out the works required for the different water uses.

Leaving aside the area irrigated with ground water, an average (measured at the intake works) of 12,000m<sup>3</sup> of irrigation water per hectare is used in Argentina, a high figure considering that it covers areas which are irrigated only on a supplementary basis.

The use of water to produce electric energy is far from having the significance that it should have in terms of economic and social development and the availability of natural resources. At the end of the 1960s there were little more than sixty hydroelectric power stations with a nominal capacity of 346 mW, equivalent to 9.3 per cent of total installed capacity. The average power generation of these stations (with less than 2,800 hours of utilization a year) shows that only 1 per cent of the "at present most economical" hydroelectric potential that is estimated to exist in the country was actually used.

The marked seasonal fluctuations in river flows (which require extensive regulatory works), the much too heavy scouring and bed load in some cases, and the distance between the main consumer centres and some of the sources of hydroelectric power provide only a partial explanation of the delay in utilizing this potential.

If more of the electric energy produced comes from hydroelectric sources, electricity will be much cheaper and will at the same time permit the maximum utilization of water to satisfy other needs.

The studies made by the mission showed a potential installed capacity of nearly 2.5 million kW for projects under way or in the final stages of preparation, and 4.8 million for projects, for which

the basic studies had been completed, i.e., a total potential capacity of 7.3 million kW. With a utilization coefficient of 0.5, about one third of the current "at present most economical" potential of the estimated hydroelectric resources in the whole country would be used.

The deterioration of soil and plant cover on the slopes of river basins means that watershed erosion (*el fenómeno torrencial*) is a serious problem in Argentina, endangering the population, crops and storage reservoirs for irrigation and the production of energy, and upsetting water management in arid and semi-arid areas where the erosion occurs. It may be said that 41 per cent of the area of the country is subject to erosion of this kind, and that by acting on only 10 per cent of that area the damage could be effectively controlled. Up to now, no rational measures to control erosion have been adopted, although hundreds of millions of pesos have been invested in protective measures in the lower parts of the river basins.

The importance of controlling the heavy soil erosion in the foothills of the Andes, especially in the provinces of Salta, Catamarca, La Rioja, San Juan and Mendoza, was underlined and a plan of river training to control floods was recommended.<sup>c</sup>

The River Bermejo, which is responsible for an enormous amount of erosion and carries a heavy bed load of dislodged materials along its course, is a big factor in the difficulties experienced by shipping in the lower Paraná, the River Plate, and possibly even the port of Buenos Aires. There are more than 3,000 kilometres of inland waterways within Argentina and another 1,300 kilometres beyond its borders. The system being made up of the River Plate and its tributaries, the Paraná, the Uruguay, the Paraguay and the Upper Paraná. About 15 million tons of goods in foreign trade and 40 million tons in domestic trade pass through the river ports every year.

The high cost of maintaining the access routes and navigable channels of the River Plate absorbs about 70 per cent of annual expenditure on the dredging of the whole system, on which an estimated 11 million dollars a year is spent on the average. The safe depth in the access channels to Buenos Aires is only twenty-three feet, so that tankers of more than 20,000 tons (small by modern standards) are obliged to lighten their cargo several kilometres from the port before they can enter it.

As a result of the interaction of the Paraná and Uruguay rivers when they rise, the delta formed at their mouth by the deposit of the heavier part of their silt load is advancing inexorably towards the port of Buenos Aires (at a rate of 30 to 50 metres a year), and the estuary of the River Plate is silting up at a speed that should cause concern for the port in the near future.

<sup>c</sup> In 1969, a severe landslide engulfed the town of Mendoza causing more than one hundred deaths. As a result of the catastrophe, a programme of flood control was undertaken in the neighbouring drainage basins with the assistance of United Nations agencies.

It was noted that, up to the time of the mission's visit, the competent authorities had restricted their efforts to removing deposits of sand as and where they hampered shipping, without evincing due concern for the causes of the silting up. Nor was any rational approach to the solution of the problem found in the projects examined.<sup>d</sup>

The Paraná plays a very important part in the national and international transport system, despite its limitations; the rapids at Apipé and Carayá, eddies and shallowness are, however, an enormous and decisive obstacle in the eighty kilometres between Ituzaingó and Posada. This is a serious problem, particularly for the economy of the province of Misiones, where freight rates are nearly four times higher than in the Lower Paraná.

The mission was struck by the fact that, although no important and effective works had been undertaken on the Paraná and the River Plate, the main shipping artery for Argentina and the region, encouragement and plentiful funds were available for designing structures to make rivers such as the Bermejo, and to a lesser extent the Negro, navigable. In view of the adverse natural conditions in these two valleys, this objective is self-defeating and quite unjustified from an economic point of view.

The mission made a preliminary evaluation of some projects, so as to be able to make a series of practical recommendations.

Among the main hydroelectric projects that were recommended, first priority was given to the Chocón-Cerros Colorados, Salto Grande (a joint project with Uruguay), Zanja del Tigre and Cabra Corral projects.

Lesser projects included Apipé (a joint project with Paraguay) and Potrero del Clavillo, among others.

The works at Chocón-Cerros Colorados and Cabra Corral and the preparation of the other projects had reached an advanced stage in 1970.

In Argentina, and subsequently in Uruguay and Paraguay, the mission emphasized the need to undertake a basin-wide development study of the whole River Plate Basin with the collaboration of the five countries concerned: Argentina, Bolivia, Brazil, Paraguay and Uruguay.

As regards irrigation, the report of the mission emphasized that by merely extending the spread of the irrigation networks in the main areas where infrastructure works have already been built (as at Rio Hondo) or are under construction, the established goals could be achieved with maximum efficiency. The mission also warned against a tendency to invest in scattered projects and against carrying out ill-advised projects under pressure from local power groups, and it recommended a policy of concentrating investment in works of regional or national interest,

<sup>d</sup> In 1970, the authorities adopted a new technical approach and agreed with the United Nations Development Programme on the execution of a project for the improvement of navigation on the Paraná, under the agreements reached by the countries of the River Plate basin.

where efficiency was guaranteed and markets were secure.

### *Peru*

The study of Peru's water resources was undertaken mostly during 1964, under the sponsorship of the Peruvian National Office for the Evaluation of Natural Resources (Oficina Nacional de Evaluación de los Recursos Naturales—ONERN). Five members of the Water Resources Group participated in the study, the main conclusions of which are given below.

The coastal rivers had been relatively well studied, although there was ample margin for improving the information and particularly the analysis of the data. There did not seem to be much possibility of making increased use of water flows by building regulatory structures on the rivers flowing towards the Pacific, except in the Santa basin.

In contrast, the rivers flowing towards the Atlantic have in general received little attention and they have great potential, particularly if flows from basins on the Pacific side of the watershed are tapped.

The data available on ground water left a great deal to be desired. The inventory of hydrogeological resources was fragmentary, and data on water extracted and its uses were very incomplete.

The data available on the use of water for irrigation indicated an appreciable amount of wastage. Improved agricultural and irrigation practices would yield sizable savings, for larger areas could be irrigated with the water currently available, thus precluding any immediate necessity for the construction of major permanent works.

The soil inventories made in various regions indicate that the factor holding down crop and livestock production is water rather than soil, not only as regards the physical balance of the two elements but also as regards the cost of water for irrigation in certain areas.

Peru's economically exploitable hydroelectric resources are enormous. When the study was made, two-thirds of all installed capacity was hydroelectric. The mission considered that this proportion was likely to remain constant in the future and that it would be advisable to establish area and regional systems and a time-table with a view to the eventual establishment of a national system.

Drinking water supplies in the cities should be considerably expanded and improved. The mission considered that the recently initiated rural programme should be energetically promoted and that active measures should be taken to clean up the sewerage and drainage systems. Pollution was already becoming a serious problem in some water courses.

The lack of basin-wide integrated water use planning in a number of drainage basins has led to conflicts over the use of water for similar purposes in different projects, for example in the Arequipa complex (Majes, La Joya, etc.) and in the Olmos-Tinajones-Sierra complex.

After a realistic cost-benefit analysis of the various water structures, a thorough examination of the rates

paid for the corresponding public utilities—chiefly drinking-water supply, water for industrial purposes, irrigation and electric power—was seen to be essential. The criterion recommended in all cases was that users should pay the total costs of the service. Any subsidies that the authorities might consider advisable in special cases should not affect the economic viability of the utilities concerned.

A number of decision-making centres plan the utilization of water resources—the Ministries of Agriculture, Development and Public Health, the National Economic Development Fund and the regional corporations. It was recommended that water resources planning should be initiated immediately and should be co-ordinated throughout a number of stages, beginning with the establishment of an Inter-Ministerial Committee on Water Resources, and of drainage basin committees.

There was no central body responsible for co-ordinating electricity development plans in the various departments that would be capable of appraising alternative projects and establishing priorities for the projects with different sources of supply in a particular region, based on economic criteria. Nor was there any proper co-ordination between the departments concerned with irrigation and those concerned with energy supply. Some of the regional corporations, such as the Cuzco and Tacna corporations, were constructing power stations without having made suitable studies of load factors.

The central authorities for water and energy resources should consider the advantages of the various projects and decide which were most in line with the national interest and would help to utilize the vast water and energy resources of the Amazon system to benefit the arid coastal regions, which are the most densely populated.

In the light of the fall of a large mass of ice from the Huascarán ice-cap which buried the village of Ranrahirca (Callejón de Huaylas) in a few moments in 1962, the report pointed out that similar falls were likely to occur in the same place or elsewhere and recommended that special priority should be given to ice and snow studies of the area.

Earthquakes and avalanches again buried Ranrahirca and also the village of Yungay in May 1970, killing tens of thousands of people, a very sad demonstration of the validity of the recommendation.

### *Uruguay*

The study on Uruguay summarizes some of the outstanding features of economic development in recent years, which is directly related to the use of water resources. Uruguay has a relatively flat surface and a moist temperate climate, the average annual flow in its rivers (excluding international waterways) being about 60,500 hm<sup>3</sup> (1,920 m<sup>3</sup>/sec.). Total gross demand for water by the major consumption sectors, estimated at 650 hm<sup>3</sup> in 1965, is expected to be close to 1,000 hm<sup>3</sup> in 1974, and more than 2,000 hm<sup>3</sup> in 1990. This would mean that by 1990 the current demand for drinking water and for water for indus-

trial purposes would have doubled, and that the demand for irrigation water would have quintupled.

In a comprehensive meteorological and hydrological analysis (surface and ground water), the report discusses how relatively long periods of drought (with high rates of evaporation) alternating at irregular intervals with intense rainfall are reflected in losses in crop and livestock production, and also in catastrophic floods.

Rainfall observations are taken by 620 stations, several of which have reliable records going back more than fifty years. In general, the meteorological observation stations are distributed fairly evenly around the country and operate adequately. Most of the hydrological observations (limnigraphs) are given without data on flows, so that they are useful merely as water-level readings. Exceptions to this are the River Negro—whose flow is checked regularly because it is closely associated with the country's electric power system—some rivers in the Santa Lucia basin, and Lake Merín.

The mission drew attention to the great potential of the water-bearing strata of the sandstone area of Tacuarembó, which are of considerable economic value. The deep drilling undertaken by the National Fuel, Alcohol and Cement Administration (Administración Nacional de Combustibles, Alcohol y Portland—ANCAP) when exploring for petroleum in Dayman, Arapey and Artigas has shed a great deal of light on the geological formation, as have the data obtained by the State Sanitation Works (Obras Sanitarias del Estado—OSE) from shallow drilling in Rivera, Tranqueras and Tacuarembó. The possibility of utilizing these water-bearing strata for irrigation purposes should be studied. The data available indicate that they might yield as much as 40 m<sup>3</sup>/sec., which would be enough to guarantee the supply of pasture and water for livestock over a large area, even in periods of drought. It would also help substantially to improve the low yields per hectare of high-grade beef cattle and appreciably improve the trade balance.

As regards the main functional uses of water, the report notes that the drinking water supply in Uruguay is among the best in Latin America. In 1968, one and a half million people were getting their drinking water from the public system, that is, 69 per cent of the total population and 80 per cent of the urban population.

Given the high quality of the data available, it was possible to analyse the situation in somewhat more depth, for a good water supply system means not only ample amounts of good-quality water, but the right pressure in the pipes, continuous supply, etc. The supply was divided into four categories by size of town: with more than 50,000 inhabitants, with between 10,000 and 50,000, with between 1,000 and 10,000, and with less than 1,000.

It was found that, as a result of most commendable efforts, the targets for water supply for the urban population fixed by the Alliance for Progress in the Charter of Punta del Este had already been attained.

A large number of industrial plants use water supplied by the public system, but the largest plants have their own reservoirs and even their own purifying plants—for example, certain food, textile and paper factories.

It was recommended that, as part of the policy to relieve the current concentration of activities in and around Greater Montevideo, measures should be taken to prevent serious conflicts between different consumers of water, especially between industry, the general public and the users of water for irrigation.

The mission made a fairly detailed study of the level of water pollution in the department of Montevideo during dry periods with special attention to the effluent discharged close to the beaches of the capital city. A programme of research and projects was suggested to save the beaches from the kind of pollution that is already perceptible.

The economically viable potential hydroelectric capacity of the country totals approximately 1,500 mW, of which only 236 mW, or about 15 per cent, are installed capacity in the Negro river basin. Uruguay is, however, the country in South America that has so far done most to develop its hydroelectric potential. Between 1975 and 1980, it should be in a position to instal a further 990 mW in power stations provided for under projects already under way or in their final stages of preparation (Salto Grande 720 mW and Palmar 270 mW). This would mean that approximately four-fifths of the total economically viable potential would be utilized. With this in mind, and having regard to technical, economic and financial limitations, it was considered that it would be advisable to establish an electricity inter-connexion with Argentina as soon as possible and to secure financial resources for a medium- and long-term electric power development plan.

It also appears essential to correct serious misuse of electricity, especially in the household sector (heating and cooking), which is damaging to the economy. It was recommended that an energy and electric power policy should be initiated to rationalize supply and consumption, and that the electric power projects developed by the authorities should be carried forward.

Over the past seven years, irrigated farming has grown considerably (40,000 hectares at present compared with 26,000 in 1963), while dry farming has remained virtually stationary. The report indicates that water can play an important role in improving livestock production (watering of cattle and improvement of pastures) and, in incorporating new areas in the national economy (especially the lower Negro river basin). It is considered economically feasible to bring some 100,000 hectares under irrigation by 1985.

The greatest problems of water management and control in agriculture are erosion, flooding and drainage. These problems are generally interrelated and as a whole affect and limit the use of 3.8 million hectares, or approximately one-fourth of the area of the country.

Inland waterway transport is on a relatively small scale. The prospects for developing it are closely linked to stepping up the growth of the region as a whole, the completion of the Salto Grande project, measures taken to consolidate and specialize ports and harbours, etc.

Notable progress has been made in recent years in basin-wide river development studies. The report examines the work done by the main bodies and committees responsible for such studies, which cover close to two-thirds of the country. It is recommended that a development policy should be established for water resources at the national and river-basin levels, and that measures should be taken to improve co-ordination between all the different bodies concerned with water, which are for the most part superimposed on one another and frequently in conflict, through joint action by the Planning and Budget Office and the National Water Council.

A detailed analysis of legal and administrative issues led to recommendations for a reappraisal of the basic aspects of current water legislation with a view to encouraging action by private individuals to permit State programmes to be carried out in a rational manner and to creating more flexible machinery for water resources planning as an integral part of the national planning process.

The investment required to reach reasonable targets for the integrated multipurpose utilization of water is estimated at some 490 million dollars between 1968 and 1985 (an average of 29 million a year). As a working hypothesis it was assumed that the gross product would grow at an annual rate of 4 per cent, which would mean that this annual rate of investment in water resources (hydroelectric power, drinking water, sewerage, irrigation, etc.) would in all represent about 10 per cent of gross fixed investment.

#### *Paraguay\**

Paraguay has an area of 406,752 km<sup>2</sup> and comprises two major natural regions: the eastern region and the western or Chaco region, divided by the River Paraguay. The Chaco region, which is sparsely populated and in the early stages of development, covers an area of 247,000 km<sup>2</sup>.

In the extreme north the climate is tropical, while in the centre and south it is subtropical. Summers are hot and winters mild. Maximum temperatures of 43.6°C (110.5°F) in the shade have been recorded at Mariscal Estigarribia.

Rainfall is frequent, but more abundant from October to April and scanty from May to August. The annual average is about 600 mm in the extreme east, on the River Paraná close to Presidente Stroessner.

The south wind is cold and dry and the north wind hot and moist. The evaporation rate is as much

\* The Planning Office of the Office of the President sponsored the mission to Paraguay. The field work took approximately two months and was carried out in late 1966.

as 1,500 mm per year in the Chaco and 1,000 mm in the eastern region.

In the eastern region there are abundant surface and ground water resources, and it is not expected that development programmes will entail any conflicts regarding alternative water uses. In the Chaco, on the other hand, the main obstacle to development is the shortage—and even the complete lack, at times—of water suitable for irrigation and drinking. Good-quality water is available in abundance only in the areas around the Paraguay and Pilcomayo rivers.

The southern part of the Chaco, which has a number of surface water courses, alternates between flood and droughts; moreover, the water is frequently brackish (with salinity at over 10,000 p.p.m) and unsuitable for drinking, irrigation or livestock. In the central part, the flow of rivers and streams virtually ceases at low water, and in the far north and north-east, except for the Timanes (which flows into a depression) with no outlet, there is no water course worthy of mention.

The preliminary and incomplete geological studies available to the mission and also the results of some drillings appear to indicate that ground water in relative abundance and of good quality at a depth of less than 200 metres is only available around Benjamín Aceval (southern end of the Trans-Chaco Highway) and in the north-west, between Siracuas and the Bolivian frontier. In the rest of the Chaco, according to the data available, water is found only in small amounts in the first water-bearing stratum and is sometimes fresh and sometimes salt.

Because of the paucity of geological data on the region, it is advisable to undertake a programme of deep drilling (up to 1,500 metres) to find out whether or not there is ground water potential, either artesian or semi-artesian, in the lower strata.

With respect to drinking water supply, it was found that only Asunción had household supply, operating since 1959. Consequently, only 20 per cent of the urban population and 7 per cent of the total had piped water in their homes. With UNICEF assistance, the Ministry of Public Health implemented the Basic Rural Public Health Plan between 1959 and 1963, which provided water to some population centres, but without household connexions.

The service in Asunción is good but relatively expensive, and this has meant that many inhabitants have continued to get their water from private wells.

In the eastern region, because industrial activity is on a small scale, there are no problems of water supply. In Asunción, supply is mainly by the public system, but outside the capital water is drawn on a private basis from wells or nearby rivers.

Only Asunción has a public sewerage system, which discharges untreated effluent into the River Paraguay at eight points. This, however, does not have harmful effects, even within the bay, owing to the high dilution factor and a combination of other factors such as the abundance of sunshine and oxygen.

Paraguay is essentially an agricultural country and its land resources are the basis of its economy.

Two thirds of the population is rural. Crop farming occupies 2 per cent of the land area, and stock farming 35 per cent. Both crop and livestock yields are generally low, even compared with other Latin American countries.

No irrigation is required in the eastern region, where it is used only on a tiny scale; but irrigation is needed in the Chaco, although it is not used because it is much more economic to farm in the eastern region.

Only the rice crops, covering 20,400 hectares, are irrigated; even though irrigation is not strictly necessary, it is used in the eastern region mainly as a means of regulating temperatures and controlling undergrowth.

The potential of the Chaco is enormous. The predominant soils are composed of slightly clayey fine sand with a high agricultural yield index and low water retention. The subsoil is more clayey and has the opposite characteristics.

The most important problems connected with water management and control are erosion, flooding and drainage, which affect virtually the entire country and mean that one eighth of the total area cannot be put to use and is unproductive.

At present, one hydroelectric power station is in operation, situated on the Acaray river. Its installed capacity currently stands at 47 mW and will eventually be raised to 248mW, when it will export power to the state of Paraná (Brazil) and the province of Misiones (Argentina). The transmission lines are expected to be put into service in 1972.

Estimates place the economic hydroelectric potential of Paraguay at close to 5.5 million kW at average flow rates (installed capacity in power stations could be double this). More than 90 per cent of this potential is to be found in two border locations, namely Guayra (or Sete Quedas) on the border with Brazil, and Apipé, on the border with Argentina.

Navigation is the most important non-consumption use of water in Paraguay. Since colonial times the rivers have provided the means for exploration, communication and trade. The Paraguay-Paraná river system provides Paraguay with an outlet to the sea through the River Plate, and this is the route used by most of its exports and imports.

There are no regulatory works on the system, where water levels vary a great deal. During some low-water periods, which may last as long as 150 days, passengers and freight have to be transhipped in Argentine ports. The dredging capacity of the Office of Hydrography is very limited. There has been no river-training and nothing has been done to stabilize the river beds, with the result that changes in river courses have left some port facilities, such as those at Pilar, high and dry, out of reach of shipping. A study is at present being conducted, with UNDP (Special Fund) assistance, with a view to improving navigation on the river.

The wide variety of bodies responsible for water management contrasts with the rather limited scale

of their activities. Neither this fact nor the current legislation encourages the present or planned water use programmes; but neither are they an obstacle to such developments.

Large-scale water-resource development in Paraguay depends for the most part on extra-national factors, and it would therefore seem advisable to restructure the administration, taking advantage of existing bodies, to improve legislation with an eye to future projects, and to strengthen State activities in regard to multinational action connected with the water resources of the region.

#### *Federal District of Brazil*

The purpose of this ECLA/PAHO/WHO mission was to lay down the general principles for planning the utilization of water resources in the Federal District. It culminated in an agreement to prepare a master plan for the supply of drinking water in which the above organizations would participate.

The Federal District of Brazil is 5,814 km<sup>2</sup> in area and covers an extensive region known as the "Planalto Central", which is a veritable divide between the tributaries of the River Plate, the Amazon and the San Francisco River.<sup>1</sup> The surface is slightly undulating, with high points ranging from 800 to 1,330 metres above sea level.

It lies between the tropical savanna and the moderately rainy temperate zone where the winters are dry.

The rainfall varies greatly throughout the year, the annual average being somewhere between 1,500 and 1,700 mm. The three months from June to August are exceptionally dry, with less than 10 per cent of the average rainfall for the year.

The population of the Federal District has grown by leaps and bounds from 12,700 inhabitants in 1957 to 320,000 in 1967.

The construction of Brasilia offered excellent employment opportunities; it attracted thousands of families of workers and technicians from the rest of the country, which settled in the Federal capital and in satellite towns, an estimated 90 per cent of the population being urban.

Government agencies assume that the city of Brasilia should accommodate a maximum of some 600,000 inhabitants and the whole District about 1 million inhabitants in roughly twenty to thirty years.

Because of its relative scarcity, water is a critical element for the development of human and economic activities in the Federal District. The inventory of this resource and its rational utilization should be carefully planned, particularly in relation to requirements in terms of drinking water, power generation, irrigation, watering-places for animals, recreation, and the disposal of sewage to protect the environment.

<sup>1</sup> Of the water resources in the Federal District, 63 per cent flow into the River Plate Basin, 24 per cent into the San Francisco river and 13 per cent into the Tocantins, in the Amazon basin.

There is little information on rainfall, temperatures, evaporation, sunshine and winds, since there are few observation stations and the records do not go back very far. On the basis of the few data available, however, it was possible to identify the principal hydrometeorological parameters, the theoretical irrigation requirements for seven different crops, etc.

The annual mean flow in the Federal District is about 3,700 hm<sup>3</sup> in an average rainfall year, which is equal to about 109 m<sup>3</sup>/sec.

This is a theoretical flow that would be available if there were complete control. With less control, permitting the flow to be utilized for 75 per cent of the time, only 1,500 hm<sup>3</sup> (47 m<sup>3</sup>/sec.) would be available.

These figures are lower than the estimates of the probable demand for water for the expected volume of human and economic activities when the Federal District and Brasilia attain their full development in the not-too-distant future.

There are no estimates concerning ground water. The mission reported that the highly permeable soil permits the accumulation of large quantities of rain-water which in the dry winter season feeds the surface water courses ensuring a constant or virtually constant flow in most of them.

The mission paid special attention to the problems involved in multipurpose water use.

Future demand for drinking water was estimated at 120 hm<sup>3</sup> annually for a maximum of 600,000 inhabitants in Brasilia, in line with the existing plans.

Water is supplied in accordance with the original plan, which satisfactorily covers demand. It was noted that daily per capita consumption was very high (about 800 litres) and some practical measures were suggested for avoiding waste, which represented considerable expenditure without any economic or social justification.

At that time, the water supply of the satellite towns around Brasilia was not so good.

The mission reported on the excellent distribution of the sewage treatment plants, thanks to which the needs of a population of some 150,000 in Brasilia were met in 1966, and those of an additional 75,000 can be met in the near future. The sewerage systems were being extended. On the other hand, the satellite towns (except Sobradinho) still had no sewage plants or sewerage systems on the date of the mission's report.

The document devotes particular attention to the problems affecting Lake Paranoa. Stress was laid on the possible danger of pollution, which makes it advisable to keep a strict watch over the existing ecological environment. This lake serves both aesthetic and recreational purposes, increases the humidity, generates electric power and receives the water processed in the south wing of the Pilot Plan.

The flow of sewage from different sources was estimated at about 1 m<sup>3</sup>/sec (86,000 m<sup>3</sup>/day). It was suggested that the Water and Sewerage Depart-

ment (Departamento de Aguas e Esgôtos—DAE), jointly with the Sanitary Engineering Institute of Guanabara, should launch a routine sampling and analysis programme with a view to controlling harmful biological processes.

The mission estimated that by the time the population of the Federal District had grown to 1 million, its annual gross demand would be 1,440 million m<sup>3</sup>, including the re-utilization of water for various purposes. Irrigation absorbed the largest share of consumption (12 to 14 per cent), depending on the volume of rainfall during the year.

From a comparison of the demand with the supply of surface water it was concluded that there might be critical water shortages in the future. Even supposing that ground water could in some degree make good these shortages, the mission pointed out that development might be seriously hampered if there was a demand for water for industrial purposes—which is not taken into account in the above calculations—and, at the same time, an unexpectedly large increase in the population.

The problems of electric power supply in the period 1970-1975 were also analysed, taking into account the difficulty of assessing the growth of demand and the different electric power supply options.

Because of the wide range of sources of supply, electric power plant and equipment can be flexibly planned so as to meet the growth of demand, which is rather difficult to predict.

The following suggestions and recommendations are put forward in the report: (1) that a Sanitation Research Centre be established to control all forms of environmental pollution, its action to extend beyond the Federal District to the states of Goiás and Minas Gerais; (2) that steps be taken to create an irrigated green belt round Brasilia to supply the city's inhabitants with vegetables, fruit and dairy products, and that suitable areas be chosen for growing rice, bananas and other crops under irrigation; (3) that research be carried out on ground water, and that all water resources be planned on an over-all basis, to include the construction of dams and the implementation of policies establishing priorities in the use of water and to save it in order to prevent serious shortages in the relatively near future.

#### CENTRAL AMERICA

The mission was sponsored by the Central American Electric Power and Water Resources Subcommittee of the Central American Economic Cooperation Committee (CCE), and was co-ordinated by the ECLA Electric Power and Water Resources Mission to Central America; it had the co-operation of experts in irrigation and multipurpose water use, legal and institutional questions, hydrometeorology and sanitation, from the Joint ECLA/OTC/WMO/PAHO/WHO Survey Group on Water Resources.

A preliminary visit was made to the six Central American countries (Guatemala, Honduras, El

Salvador, Nicaragua, Costa Rica and Panama) in May and June 1967 to discuss objectives with the national authorities and initiate the quest for information, and a second visit was made at the end of 1967 and in early 1968 in order to complete the compilation of data and discuss the conclusions of the report of each expert.

Although the consolidated report for all the countries has not yet been completed, some conclusions can be anticipated.

The main meteorological causes of rainfall in Central America are: the inter-tropical convergence zone; the easterly waves, or waves of instability; hurricanes; "temporales" (big storms); local meteorological movements; and cold or polar fronts.

The most variable meteorological factor is rainfall, which ranges from 500 to slightly more than 6,000 mm a year, the average being 2,170 mm. In most of Central America, the rainy season is from May to October, with very little rain falling between November and April. The Atlantic seaboard is the exception: here it rains for a much longer period, or all year round.

Temperature may be considered to be fairly uniform and variations are caused by topography. Thus, besides the hot and humid regions at sea level, there are areas with a pleasanter climate, such as Guatemala City, San José and Tegucigalpa.

Rivers flow in two main directions: towards the Atlantic or the Caribbean and towards the Pacific. Seventy per cent of the total land area drains into the former and includes Belize (British Honduras), and the remainder into the Pacific. Generally speaking, the rivers flowing into the Atlantic have larger basins, a greater run-off and gentler falls than those emptying into the Pacific. Mainly on the basis of rainfall, the rivers are estimated to have a mean flow of 19,829 m<sup>3</sup>/sec., of which 14,162 m<sup>3</sup>/sec. go into the Atlantic and 5,667 m<sup>3</sup>/sec. into the Pacific. In general, the river systems have a high-water period from May to November (and sometimes December), the rest of the year being a low-water period.

Although rainfall is high throughout the region, the impermeability of the soil reduces the low-water flow on the Pacific watershed. Soil erosion is a serious problem in some high areas and is aggravated by bad agricultural practices in certain areas of Guatemala, El Salvador, and the central plateau of Costa Rica. The river beds are often obstructed by the solids carried downstream, so that the low-lying land is easily flooded. Although irrigation systems could be improved without necessarily building major regulatory structures immediately, it would obviously be advisable to initiate multipurpose projects.

Many river basins in Central America are international and are of interest to more than one country. Moreover, Mexico shares with Guatemala the basins of the rivers Azul-Hondo, Salinas-Usamacinta, Grijalva and Suchiate. The United States also has devised instruments (in the different treaties that are now under review) establishing its

right to use some waterways for inter-ocean navigation (Panama Canal).

Although the process of Central American integration includes water resources, multinational works have not yet gone beyond the study stage, and the internal legal and administrative structures have not yet been adapted to the integration of water resources. However, the existence of the regional organizations will facilitate planned action along these lines.

The project for which WMO is the executing agency, and which is being carried out with the assistance of UNDP (Special Fund), is an important step forward towards the integrated expansion and improvement of the hydrometeorological and hydrological services of the region. Steps are being taken to improve the measurement and identification of water resources throughout the region, but the water authorities do not yet have any suitable administrative machinery for sifting this and the other supplementary information needed for the integral planning of water resources.

For some time studies have been going on on the prospects for interconnexion of the energy systems of the countries of the region and for taking advantage of the saving that would result from joint or integrated operation of hydroelectric and thermoelectric power stations.

How profitable interconnexion would be will depend on how far the countries wish their national systems to remain independent. Interconnexion may consist merely in exchanges of energy and the utilization of reserves, without basically altering the national power enterprises' development programmes for satisfying domestic needs. On the other hand, some interconnexion schemes are much more ambitious and call for the planning of electricity systems on a regional basis and the development and utilization of multinational projects.

Owing to the compactness of the region and the technical advantages it has for energy systems, there are attractive economic prospects for interconnexion between the following countries: Guatemala-El Salvador, El Salvador-Honduras, Nicaragua-Costa Rica and Costa Rica-Panama. The replacement of high-cost energy from gas turbines or diesel generators in Guatemala by cheap energy generated by steam turbines in El Salvador and the utilization of hydroelectric potential in Honduras and Costa Rica to complement thermal output in El Salvador, Nicaragua and Panama, could provide economic justification for interconnexion between the countries. In no case have final decisions been arrived at, mainly owing to the absence of long-term programmes for the development of the national systems and the lack of legal instruments of a general nature to regulate the development of the electricity interconnexion programmes between countries, and to facilitate negotiations and possible agreements between public and private enterprises. However, these questions are being studied in greater depth with a view to overcoming existing obstacles and facilitating interconnexions.

Some conclusions in respect of each country are given below.

#### *Costa Rica*

Annual rainfall varies between 1,500 and 6,200 mm, the average for the country as a whole being 2,790 mm.

Surface water resources, estimated according to the volume of rainfall on a specific area every year, amount to 3,019.4 m<sup>3</sup>/sec., slightly more than half of which flows into the Atlantic.

The irregularity coefficient of the flows varies between 0.10 and 0.37, and is greater in the Pacific watershed.

The location of the irrigable land is a limiting factor on agricultural output; it could be mitigated by diverting the river San Juan, which runs through Nicaraguan territory, to the Pacific watershed, in order to develop the Arenal-Cote irrigation and electricity generation project. Water from that river would also be required to supply small settlements and the irrigation projects for Liberia and the Tempisque valley. In other cases, the demand for water could be met from ground water through the integrated water management of certain basins, and there might even be a possibility of choosing between different alternative uses.

Although the Ministry of Agriculture and Livestock is showing increasing interest in irrigation, it has been entirely in private hands up to now.

The Costa Rican Electricity Institute, a State enterprise, efficiently provides a considerable proportion of the public electricity supply, using mainly hydroelectric potential. Of the total installed capacity in the country (236 mW in 1969), 87 per cent is hydroelectric.

The legislation in force does not provide the State with the necessary instruments for speeding up the development of water resources, but full advantage has not been taken of the possibilities it does provide for doing so. In accordance with recommendations made while this study was being made, the National Water Council was set up as a first step towards co-ordinating State activities in this field.

#### *El Salvador*

The average annual rainfall in El Salvador is 1,820 mm, with a range of from 1,450 to around 2,500 mm.

According to the amount of rainfall, the mean flow of surface water resources would be about 383.4 m<sup>3</sup>/sec., but this is increased by the flow of the Lempa and its tributaries where they flow through Salvadorian territory.

Since the population is growing fast while the supply of land and more importantly of water is inelastic, steps must be taken to speed up the use of water resources. It is estimated that 250,000 of the country's 320,000 hectares of cultivable land could be irrigated. To irrigate this area, immediate use could be made of natural water flows, particularly the Bandera and Sonsonate rivers and at

the same time plans could be made for the multi-purpose development of the Grande and San Miguel river basins.

The Irrigation Works Department is a suitable instrument for this purpose, and would work in conjunction with the River Lempa Hydroelectricity Authority (Comisión Ejecutiva Hidroeléctrica del río Lempa—CEL), which is completing a project to increase the area of irrigated land by 40,000 hectares.

Total installed electrical capacity amounts to 205 mW, 53 per cent of which is hydroelectric (1969). Water resources projects are in existence that would triple hydroelectric capacity. The growing demand for water for domestic and urban supply could make it necessary to use water currently used for irrigation, a situation which should be provided for both in planning and in legislation. The limited amount of land available makes intensive farming essential, and this, coupled with bad agricultural practices and heavy rainfall, causes erosion of arable land.

Various laws empower the private sector to promote the development of water resources and have set up State bodies to deal with different water uses, but they do not place over-all control in government hands. This leads to conflicting action by different government authorities and the private sector, which is most undesirable for a country where the water supply is beginning to pose serious problems. For this reason, a water code has been recommended, to be applied by a central water authority. The Executive is taking rapid action to enforce a law on irrigation that was recently passed and which allows the State to intervene actively in the sector.

#### *Guatemala*

Annual rainfall ranges from 500 to 6,000 mm, with an average for the whole country of 2,180 mm.

According to the volume of rainfall, the mean flow of water resources is estimated to be 3,693.8 m<sup>3</sup>/sec., 75 per cent of which drains into the Atlantic.

The agricultural sector suffers most from floods and erosion. The latter problem affects the whole country, but is more pronounced in mountain areas that are over-cultivated by the indigenous population. Except in a few areas, the development of agriculture is not limited by the water supply.

Though irrigation—the major use to which water is put—has not grown in the last twenty years, it competes with domestic and urban consumption in the capital and in Quetzaltenango.

The report recommends improving farming methods, intensifying the programme of small-scale irrigation works being carried out by the Renewable Natural Resources Department (Dirección General de Recursos Naturales Renovables) and speedily finding a solution for the capital's drinking water supply problem.

A very small fraction of hydroelectric potential is currently used, but the National Electrification Institute (Instituto Nacional de Electrificación—INDE) has formulated potentially multipurpose development projects, mainly to serve the Pacific watershed. Of a total installed capacity of 164 mW in 1969, 40 per cent was hydroelectric.

Stop-gap legislation, pending the enactment of a law that has been under study for several years, deals with some of the problems of water resources. The administrative structure is also geared to dealing with certain problems. It has been recommended that a system of administrative co-ordination be implemented and that authority be vested in a single branch of the national administration.

#### Honduras

This country has the lowest average annual rainfall in Central America (1,710 mm), but the extremes range from 700 to 4,200 mm. On the Caribbean coast, the rainy season is from August to January, but at the latitude of 15° south, the rainy season is from May to October (as for the rest of Central America), when 80 per cent of the annual rainfall occurs.

The rainfall run-off is 3,206.5 m<sup>3</sup>/sec., 92 per cent of which goes into the Atlantic.

Neither water nor land are limiting factors to production, nor are they expected to be so for a long time to come. With the major structures already in existence it would be possible considerably to expand the area under irrigation, which is already more than 21,000 hectares, but to achieve the goal of 100,000 hectares set by the Government, it would be necessary to control the flow of certain rivers.

The hydroelectric projects under study (river Lindo, Choluteca, El Cajón, El Naranjito, etc.) would more than satisfy projected demand for electricity during the next few decades, and for that reason it was recommended that the feasibility of exporting energy should be studied, taking advantage of the prospects opened up by the Central American economic integration programme. Installed hydroelectric capacity is currently 33 mW out of a total installed capacity of 91 mW (1969).

In order to supply the capital with drinking water, it was necessary to use water that was previously used for hydroelectric purposes, but no other cases of conflicting uses have arisen.

Because of prevailing conditions in Honduras, its water policy is governed by considerations which are different from those in any other Central American country. Deforestation and the heavy rainfall are causing progressive erosion, which gives rise to floods in the low-lying areas in the lower reaches of the rivers. It was recommended that special attention be paid to river training, the drainage of certain areas, and more intensive afforestation in critical areas.

The legislation in force satisfies the requirements of irrigators, who are the principal consumers of water, but it does not endow the Government with

sufficient powers to manage the water resources properly on a wide scale. However, by making slight changes in the current administrative structure, it would be possible to plan water resources development on a rational basis.

#### Nicaragua

Nicaragua's average annual rainfall fluctuates between about 1,000 and a little over 6,000 mm, and the average for the whole country is 2,140 mm. Except on the Atlantic coast, where it rains throughout the year, there is a rainy season which lasts from May to October and a comparatively dry season from November to April. The annual rainfall in the whole country produces a surface flow of 5,521.1 m<sup>3</sup>/sec., of which 96 per cent goes into the Atlantic.

To raise agricultural production in step with demand, Nicaragua should, *inter alia*, increase the present irrigated area of an estimated 25,000 hectares to 275,000 hectares of land suitable for agriculture. Because of the low income of rural workers and the fact that the national budget is too small to cover the many requirements, it is difficult to construct important irrigation works. It was therefore recommended that smaller projects be constructed on the basis of low-water flows, groundwater near the surface, and lakes, and that more important works be postponed until more experience had been gained.

Erosion and floods do not affect all areas. Because of the progressive deterioration of Lake Managua, on which the capital is situated, it cannot easily be used as a source of urban water supply or for recreational or even agricultural purposes. Total installed capacity for the production of electric power in 1969 was 160 mW, of which 36 per cent was hydroelectric and owned mainly by the National Light and Power Enterprise (Empresa Nacional Luz y Fuerza—ENALUF). The hydroelectric plant currently under construction at Santa Bárbara will represent an additional 50 mW.

Undoubtedly, the most important projects in the whole of Central America are for the multipurpose utilization of the San Juan river basin; this is a necessity for Nicaragua but it is also of interest to Costa Rica and might possibly be useful for the construction of a new canal between the Atlantic and the Pacific.

To remedy the comparative lack of legal water resources regulations, it was recommended that new legislation be enacted on less stringent bases than those proposed for other countries, a task which has already been initiated with the co-operation of UNDP and has resulted in the preparation of draft legislation. It was also recommended that an agency be established to plan the integrated development of water resources within the national planning system, and that decision-making be centred in a single authority.

#### Panama

After Costa Rica, Panama is the country with the highest annual average rainfall in Central Amer-

ica. Although the average is 2,580 mm, the rainfall ranges from 1,000 to 5,500 mm in different parts of the country. There is a rainy season from May to December and a dry season from January to April; the rainiest period is generally from June to November, in which 70 to 80 per cent of the total rainfall for the year is concentrated.

The yearly rainfall produces an average flow of 4,005.2 m<sup>3</sup>/sec., of which 40 per cent goes into the Atlantic. The Chagres river basin supplies the water to operate the Panama Canal, which is the most important use for Panama's water resources. Since to all intents and purposes this water is consumed, and the supply from the river basin is limited, the Canal's operating capacity is also restricted. The Panama Canal is of considerable economic importance to Panama. If the proposed sea-level canal is constructed, a flow equal to 80 m<sup>3</sup>/sec. would be available for other purposes (mainly hydroelectric power production) and the area now covered by lakes would represent approximately 50,000 hectares of additional arable land in the most densely populated part of the country.

At present, about 18,000 hectares are under irrigation. In areas where this is necessary because of the climate, natural flows could be used to irrigate some 36,000 hectares which, if the flows were properly controlled, could be increased to 100,000 hectares. This is most necessary in the west and during the months of January to April.

The production of hydroelectric power represents an installed capacity of 61.6 mW, of which 46.5 are supplied by the Chagres river basin; there is a scheme to install 200 mW in the Bayano river basin. Panama's total installed capacity in 1969 was 317 mW. The erosion, floods and pollution observable in some areas have not assumed too serious proportions.

The lack of legal titles to the land under cultivation constitutes an obstacle to agriculture which deserves the authorities' attention. A recent law nationalizing the country's water resources is applicable to all questions related to them. A National Water Commission was set up to apply this law, but at the time that the study was being carried out, its action was confined to considering and settling requests for water use concessions, owing to its small budget and limited technical staff.

It was recommended that the activities of this Commission be intensified and integrated with overall and sectoral planning.

#### *The South Paraíba river basin*

The basin of the South Paraíba is an important area in Brazil, since part of it comes under the influence of the dynamic development poles of Rio de Janeiro and São Paulo. It has an area of close to 60,000 km<sup>2</sup> and in 1967 its population was 3.7 million (an average density of 65 inhabitants per km<sup>2</sup>).

Population growth in the last decade was greater in the part of the basin that belongs to the state of São Paulo and slightly less intense in the parts

that belong to the states of Rio de Janeiro and Minas Gerais.

There are numerous hydrometeorological and hydrological observation stations in the basin; their average density is acceptable, but their distribution is not uniform and relocation would be advisable in some cases, in order to improve the system of basic information in this field.

The mean flow of the South Paraíba is slightly more than 900 m<sup>3</sup>/sec. at the town of Campos, which is close to its mouth; the irregularity coefficient of the flow in this region is 0.23 but it falls to 0.16 in the upper reaches of the river.

Agriculture makes an important contribution to the gross product of the South Paraíba river basin and provides employment for a high proportion of its population. The irrigated area has been estimated at around 30,000 hectares, the principal perennial crops being coffee, citrus fruit and bananas, and the annual crops including rice, beans, maize, sugar cane and cassava. The basin had a rural population of 1.55 million in 1967.

In 1968, the volume of water used by industry was slightly more than 13 m<sup>3</sup>/sec., though possibly only 10 per cent of this volume was used for consumption. The biggest supply was to the steel plant at Volta Redonda.

Estimates of hydroelectric potential calculated on the basis of the principal flows give a figure of 5,000 mW as the gross over-all potential and 1,900 mW as the average gross economically viable potential (16.6 million mWh).

The basin does not have its own separate sources of electricity supply but is served by the great South Central system of Brazil. In 1968, average annual per capita consumption in the basin was 700 kWh, exceeding the average for Brazil as a whole (400 kWh).

The urban area of the basin received an average volume of 327,000 m<sup>3</sup>/day of water, which amounts to a per capita supply of 150 litres a day in urban areas, though this figure rose to 300 litres a day in such places as Volta Redonda. Rural consumption was estimated at about 50 litres a day per head. Net consumption absorbed one third of urban supply and one half of rural supply. Less than 10 per cent of urban centres were estimated to obtain water from wells in 1968, and the rest from surface sources. It is estimated that 60 per cent of the urban population supplied has piped drinking water in the home and 40 per cent has sewerage facilities. Preliminary calculations show these figures to be 50 per cent higher than for Brazil as a whole.

An aspect that has been neglected, despite its great importance for the rational management of the basin, is the control of erosion, in particular through afforestation of the upper reaches.

There are duplications, conflicts and gaps in the work of the organizations that carry on activities connected with water resources in the basin, owing to the lack of over-all planning of water resources development and of effective machinery for co-

ordinating programmes and operations. These defects are manifest at the sectoral and geographical levels and also crop up in state programmes. Points which generally strike the observer are the multiplicity of advisory bodies and the scarcity of funds for carrying out even partial programmes and priority tasks.

Among the projections that have been made, one estimate was that by 1980, the urban population of the basin will have risen from the present 58 per cent to 65-70 per cent of the total, and that the actively employed population will have increased from 40 to 45 per cent.

It was estimated that an area of 60,000 hectares could be irrigated in 1980, at a rate of growth of 2,500 hectares per annum. This increase, combined with greater productivity through proper use of fertilizers, cultivation of more carefully chosen crops, crop rotation, rational use of irrigation water and more than one harvest a year, would mean a 220 per cent increase in the area available for agriculture. If the plan were carried out rationally, the consumption of water could be less than is currently consumed by natural vegetation because of the high rate of evapo-transpiration which takes place, partly because of the swamps.

The estimated increase in electricity consumption for 1980 will require the installation of an additional capacity of about 760 mW, distributed in

almost equal shares between the main stream and the most important tributaries. In the operation of existing power stations, as of those that are under construction and those that will be needed to supply the additional capacity, it will be necessary to combine considerations of the most economical use of water resources with the generation of hydroelectric power.

Although the demand for water in the whole basin will have increased considerably by 1980, no difficulties are expected in satisfying demand for all uses, even in the months of least run-off. However, as regards keeping pollution within tolerable limits, the studies that are recommended should be carried out.

No conflicts are expected between consumption requirements and the generation of electric power, since the latter will be complementary or residual, both with respect to other uses and to imports of energy from external sources.

In order to ensure the viability of the projects for the rational utilization of water and the economic development of the basin, it will be necessary to set up a central agency to administer water resources in the region, part of whose task would be to ensure that optimum use is made of the system of reservoirs, taking account of their diverse uses and the need to adopt protective measures.

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